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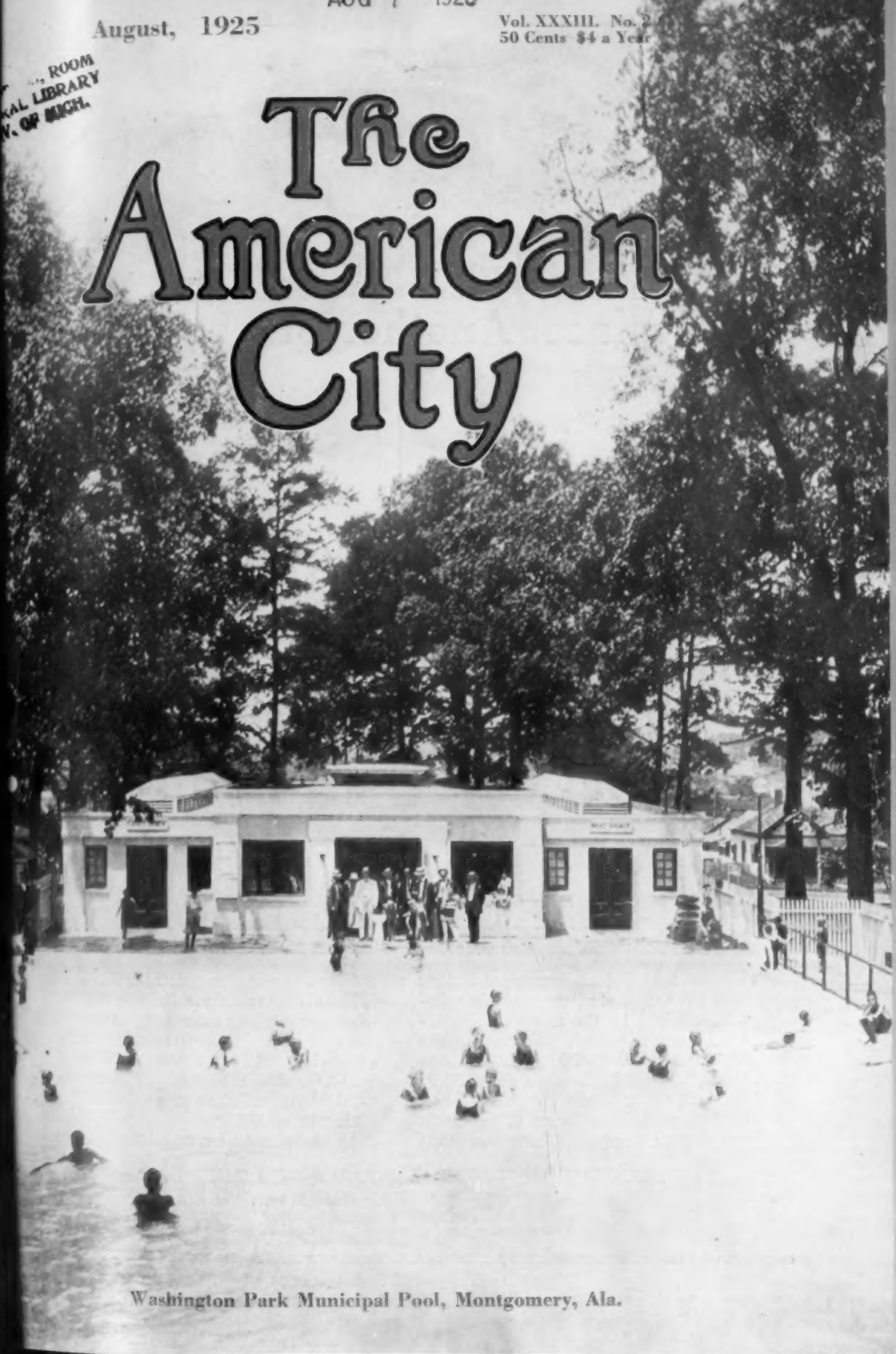

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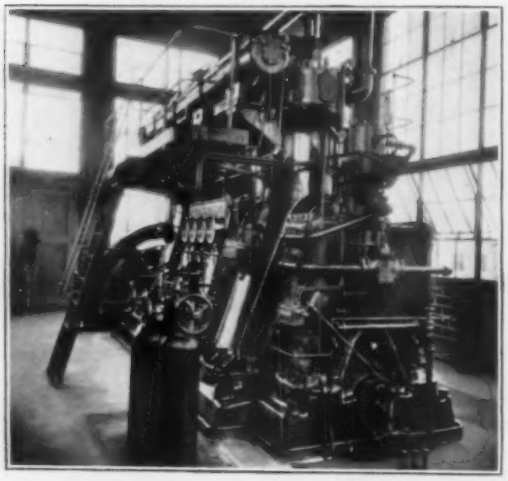
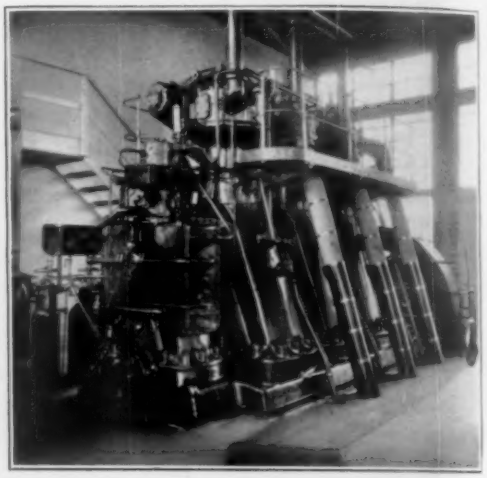


300-B.H.P. Fulton-Diesel direct connected to Generator.



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No. 2

The American City Magazine

AUGUST
1925

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The Greatest Need of Local Government

By The Rt. Hon. Neville Chamberlain, M. P.
Minister of Health of England

IF I were asked what is the greatest need of local government at the present time, I should be inclined to reply that it is the deepening and widening of the interest of the man in the street in the problems of local government, and the need of getting the best men in the community to come forward and to offer their services on local councils. Though there is a growing appreciation of the importance of local government, there is still far too much apathy and too little active interest in the questions which arise.

The work of local authorities affects the intimate concerns of daily life and ministers to the vital needs of the community far more even than that of the Central Government. Few greater disasters could occur than failure in the supply of pure, wholesome water, in the disposal of sewage and of refuse, in the removal of filth from streets and in preventing nuisances. These services are rendered with such regularity that we take them all as a matter of course and can scarcely imagine what deplorable results would follow on their failure.

It is well to recall to ourselves occasionally the great progress which has been made in the last century. Looking through the report of the Select Committee on Health of Towns which was issued in 1840, I find these statements:

The conditions of many quarters of London, especially the crowded eastern parts, are summarized as follows:

1. "Houses and courts and alleys without privies, without covered drains, and with only open surface gutters, so ill made that the fluid in many places was stagnant."
2. "Large open ditches containing stagnant liquid filth."
3. "Houses dirty beyond description, as if never washed or swept, and extremely crowded with inhabitants. Heaps of refuse and rubbish, vegetable and animal remains, at the bottom of close courts, and in corners."

The Committee quote as follows from a description of the conditions in one of the largest provincial towns:

A. "has no Building Act, and hence, with the exception of certain central streets, over which the Police Act gives the Commissioners power, each proprietor builds as he pleases. New cottages, with or without cellars, huddled to-

Similarity of English and American Municipal Problems

The accompanying article by England's Minister of Health—an official who has very broad powers in relation to housing, town planning, public health, sanitation, municipal accounting, and other problems of local government—is reprinted from the Municipal Year Book for 1925, published by The Municipal Journal and Public Works Engineer, of London. Mr. Chamberlain is, as is well known, not only an eminent statesman, but before he took high office in the national government of England he was a local government administrator of repute and an acknowledged authority on many phases of municipal work. His analysis of the great progress which local government has made in the last century, and his advocating of increased efficiency rather than niggardly economy in facing the tasks ahead, will appeal, we are sure, to municipal officials and civic workers the world over.

> gether, row behind row, may be seen springing up in many parts. With such proceedings as these the authorities cannot interfere. A cottage row may be badly drained, the streets may be full of pits, brimful of stagnant water, the receptacles of dead dogs and cats, yet no one may find fault";

and from a description of a populous ward in another large town as follows:

> "All the streets and dwellings in this ward are stated to be more or less deficient in sewerage, unpaved, full of holes, with deep channels, formed by the rain, intersecting the roads, and annoying the passengers; some ill-lighted; some without lamps, with cellars sometimes so dangerously exposed, that passengers are liable to frequent accidents, and sometimes rendered untenantable by the overflowing of sewers, and other more offensive drains, with ash-holes, etc., exposed to public view, and never emptied; or being wholly wanting, as is frequently the case, the refuse is accumulated in cellars, thrown into the streets, or piled against the walls."

Great advances have been made and conditions have been much improved. It is good sometimes to be reminded of the fact, not that we may slacken our efforts, but in order that we may cultivate a wise sense of proportion and at the same time gather fresh courage for the very formidable tasks which confront us.

It is not only the comforts and amenities of life that depend on the services rendered by local authorities but also, in no small measure, life itself; for the great reductions which have been effected in the death-rate have been largely the result of the work done by local authorities up and down the country. Complaint is often made of the large amounts spent by local authorities, and there is urgent need of every economy, but it has to be recognized that, if all capital returned as liberal a profit as the money which has been spent on these public health services has returned in longer and in better health and more comfort, the country would be rich indeed.

We are accustomed to think of local government as of hoary antiquity, and true it is that it has its roots far away in the dim past. But local government has in recent years undergone as great a revolution as the transformation from the horse carriage to the motor car. A man well acquainted with local government of half-a-century ago would find himself utterly lost in the mazes of the many services of to-day.

A glance at the expenditure during a series of years will illustrate this fact:

Year Ended March	Total Gross Expenditure Million £	Gross Expenditure per Head of Population Shillings
1874.....	36	31
1894.....	73	48
1914.....	169	92
1922.....	494	259

In approximately half a century, the total gross expenditure has multiplied nearly fourteen times, and the expenditure per head of population over eight times; in the post-war years, account has to be taken of the inflation of values, but, allowing for this, there is still a large increase because of the extension of services.

In so vast a territory of expenditure, so much of it comparatively new, there cannot but be ample scope for new discoveries. It would be a grievous mistake to imagine that large improvements cannot be effected in services now rendered. Just as in any progressive business, so equally in the work of local authorities, it is imperative to maintain a constant alertness, a persistent examination of methods and processes both in the work of councils and of committees and in the more technical functions of officials, to ascertain where new ways can be adopted which at the same time will add to efficiency and make for economy; and in this sphere the various organizations of local authorities and of officials should play a prominent part.

Not only have new services been added to the duties of local authorities, but old services have been vastly extended, and the end is not yet. The work which local authorities will be called upon to perform is likely to be increased, not reduced.

There is a growing demand for higher standards of living, for increased comforts and amenities and, while these higher standards must in turn ultimately depend for their maintenance on a higher level of production (a fact which is sometimes forgotten but which will insist tragically on recognition if neglected), local authorities will certainly be called upon to play their part in improving conditions.

This in turn demands from the members and officials of local authorities an ever increasing standard of efficiency. For, while services increase, cries for economy do not grow less. The burden of rates on industry is still heavy and may hinder the recovery of trade. It is imperative that economies shall be effected, and rates reduced, so far as is reasonably practicable; and local authorities deserve the greatest credit for the reductions

which they have already been able to effect in rates in recent years.

The best way, and in the long run the only true way, to effect economies is not by lowering standards to danger point, even though in times of stress services may have to be cut to the bone, but by higher efficiency.

Wider knowledge, more effective technique, more thorough organization, more business-like administration with a close eye on costs —these are the ways in which economies can best be secured, while at the same time efficiency is improved; and in the services rendered by local authorities there is ample room for the activities of the best brains of aldermen, councillors and officials.

Is Chicago to Be Our First City-State?

A MOVEMENT contemplating the possible separation of the city of Chicago from the state of Illinois has assumed definite form within the last few weeks. On June 24 the following resolution was adopted by the Chicago City Council:

IN THE MATTER OF A SEPARATION OF THE CITY OF CHICAGO FROM THE STATE OF ILLINOIS

"*Whereas,* representation upon the basis of population in legislative and other deliberative bodies has always been the prevailing practice in the state of Illinois; and

"*Whereas,* by the terms of the constitution of 1870 the state of Illinois is divided on the basis of population into fifty-one senatorial districts, each electing one senator and three representatives; and

"*Whereas,* the Illinois state constitution of 1870 commands a senatorial reapportionment every ten years on the basis of the federal census; and

"*Whereas,* the Illinois General Assembly has failed to perform its constitutional duty of reapportioning the state into senatorial districts since 1901, so that representation in both houses of the General Assembly may be placed on a basis of population and has thereby created a distinct inequality affecting adversely all of the more rapidly growing sections; and

"*Whereas,* according to the census of 1920, Cook County would, upon the basis of population, be entitled to at least five additional senators and fifteen additional representatives, and is thus permanently discriminated against in both House and Senate; and

"*Whereas,* the Declaration of Independence, adopted on July 4, 1776, cites as one of the principal grievances of the colonies against King George III of Great Britain that 'he has refused to pass other laws for the accommodation of large districts of people, unless those people would relinquish the right of representation in the Legislature, a right inestimable to them and formidable to tyrants only'; and

"*Whereas,* the question has been raised in New York City, Chicago, and Detroit, as to whether numerous problems of municipal and state government could not be best settled by the separation of these cities from their respective states and their creation into separate states; and

"*Whereas,* the history of the United States shows that the state of Maine was created as a separate state after its separation from the state of Massachusetts in 1820; that Kentucky was separated from the state of Virginia and admitted to the Union as a separate state in 1792; and that West Virginia, formerly likewise a part of the state of Virginia, separated from the latter and was made a state in 1863; and

"*Whereas,* the method of dividing and separating the state is controlled by Article IV, Section 3, Clause I of the Constitution of the United States, which reads as follows:

"'New states may be admitted by the Congress into this Union; but no new state shall be formed or erected within the jurisdiction of any other state; nor any state be formed by the junction of two or more states, or parts of states, without the consent of the legislatures of the states concerned as well as of the Congress'; and

"*Whereas,* the natural procedure to be adopted in case the city of Chicago and the adjacent territory in Cook County desire to separate from the state of Illinois, will be to petition the Legislature to pass an act consenting to the forming of a new state, defining its boundaries and calling for an election to determine whether or not the people of the proposed state of Chicago desire to form a separate government; therefore, be it

"*Resolved,* that the Corporation Counsel be and he is hereby directed to submit an opinion to this Council on the proper legal procedure to be followed in effecting the separation of the city of Chicago from the state of Illinois under the provisions of Article IV, Section 3, Clause I of the Constitution of the United States."

The Corporation Counsel's Opinion

In accordance with the foregoing resolution, there has been presented to the City Council, by the Corporation Counsel's office, an opinion reading in part as follows:

"The precedent is established that . . . . a new state may be created out of a part of the territory of a single state, provided the Legislature and Congress consent thereto . . . .

"There is no precise method which must be followed in effecting such a separation. The initial step may be in the form of a petition to the General Assembly asking it to consent to a separation, but the Legislature may, if it sees fit, act on its own initiative. If a petition is prepared, it should ask the Legislature to pass an act consenting to the forming of a new state, defining its boundaries, and either calling for an election to determine whether or not the people of the proposed state desire to form a separate

government, or calling for the election of a convention to determine the question. If the former method is employed, provision should be made in any event for the election of a constitutional convention for the purpose of drafting a constitution.

"The consent of the Legislature may be given in the act setting the machinery in motion, or it may be withheld until the creation of the new state is about to be consummated and consent is asked by the convention which frames the constitution. The Legislature would also be called upon to arrange the details of the separation with respect to the division of the public property and public obligations. It will thus be seen that practically the entire matter, so far as the legal procedure is concerned, rests with the Legislature."

The submitting of the foregoing opinion was followed by the adoption on June 30 of a resolution by the City Council, requesting the Mayor to appoint a committee of 150 citizens of Chicago and Cook County to crystallize sentiment on the subject of equitable representation in the Illinois Legislature, and stipulating that, if such representation is not granted, the committee shall petition the Legislature to pass an act consenting to the forming of a new state and calling for an election on the subject. Further developments will be awaited with interest.

"It Is Time That Courts Recognized the Esthetic as a Factor in Life"

IN a foot-note to the article on "Village Planning and Replanning," by Wayne C. Nason, in the July number of THE AMERICAN CITY, reference was made to the recognition of the esthetic as a factor in life,* in the epochal decision of Justice Andrew Holt of the State Supreme Court of Minnesota in the case of the Twin Cities Building and Investment Company v. City Building Inspector James G. Houghton. There has resulted the suggestion that a more detailed quotation from the opinion of the court be made available. The case deals with the validity of a local statute prohibiting the erection of apartment houses in restricted residential districts in cities of the first class. It is reported in 144 Minnesota Reports (1919), and contains the following significant paragraphs:

"Many reasons might be suggested as sufficient for the adoption of this statute. We will mention but one or two.

"It must be admitted that owners of land in congested cities have of late, through selfish and unworthy motives, put it to such use that serious inconvenience and loss result to other landowners in the neighborhood. In large cities, where the lots for residences must necessarily be of the minimum size, especially where the man of small means must dwell, it is readily seen that if a home is built on such a lot and thereafter three-story apartments extending to the lot line are constructed on both sides of the home, it becomes almost unlivable and its value utterly destroyed. Not only that, but the construction of such apartments or other like buildings in a territory of individual homes depreciates very much the values in the whole territory. The loss is not only to the owners, but to the state and municipality by reason of the diminished taxes resulting from diminished values.

"The absence of restrictions of use also gives occasion for extortion. The occurrences have been common in our large cities of unscrupulous and designing persons securing lots in desirable residential districts, and then passing the word that an apartment or other objectionable structure is to be erected thereon. In order to protect themselves against heavy loss and bitter annoyance, the adjacent owners, or parties interested in property in the neighborhood, are forced to buy the lots so held at exorbitant price. The well-to-do may in this way be able by financial sacrifice to protect their homes against undesirable invasions. But when this occurs in territory occupied by people of modest homes and moderate means, where all they have is represented by the home and that, perhaps, not free of mortgage lien, there is nothing to do but to submit to the loss and injustice. There should be a lawful way to forestall such wrongs. Courts have often resorted to the rule *sic utere tuo alienum non laedas* in administering justice between property owners. Why should not the legislature also make use of this rule?

"Another reason is that giving the people a means to secure for that portion of a city, wherein they establish their homes, fit and harmonious surroundings, promotes contentment, induces further effort to enhance the appearance and value of the home, fosters civic pride, and thus tends to produce a better type of citizen. It is time that courts recognized the esthetic as a factor in life. Beauty and fitness enhance values in public and private structures. But it is not sufficient that the building is fit and proper, standing alone; it should also fit in with surrounding structures to some degree. People are beginning to realize this more than before and are calling for city planning, by which the individual homes may be segregated not only from industrial and mercantile districts, but also from the districts devoted to hotels and apartments."

*Frank B. Williams, Esq., author of "The Law of City Planning and Zoning," points out the fact that, with regard to recognition of esthetics by the courts, many of them have freely commended it, but the cases in which the use of the police power for its protection is upheld are few. An important section of Mr. Williams' book is devoted to this subject of Planning for the Promotion of Beauty.

Making the Nation's Capital Safe for Motorists and Pedestrians

By M. O. Eldridge

Director of Traffic of the District of Columbia

THROUGH the strict enforcement of recently enacted traffic laws and regulations, tempered with courtesy and justice, it is earnestly hoped that automobile accidents in the nation's capital will be materially reduced this year. There were in Washington, during 1924, 91 traffic deaths; 38 persons were seriously injured and 2,800 persons suffered minor injuries. Of 9,000 traffic accidents, 5,800 occurred at street intersections, and 3,200 between intersections.

At its last session Congress decided that something must be done to reduce the number of traffic accidents in Washington. A law was passed, known as the Traffic Act, providing for two additional judges for the Police Court and for a Traffic Court which begins its sessions in the morning at 9 and lasts until 11 P. M., except on Sundays. The establishment of this Traffic Court effectually eliminates the collateral system heretofore prevailing in Washington and makes it necessary for traffic violators to be taken immediately to court for trial. The new law, among other things, provides heavy penalties and *jail* sentences for speeding, reckless driving, driving under the influence of liquor, the use of a smoke screen to avoid pursuit, and for attempting to avoid arrest when one is involved in an accident.

The Traffic Act provides for the appointment of a Director of Traffic and authorizes him to prepare regulations involving the use and operation of motor vehicles in the District of Columbia, these regulations to be approved and promulgated by the District Commissioners and enforced by the Police Department and the Traffic Court. These regulations have been prepared by the Director, cooperating with representatives of the principal civic and business organizations of Washington, and went into effect on May 3. The new code embodies the essential recommendations of the Hoover Conference on Street and Highway Safety.

New Speed Regulations

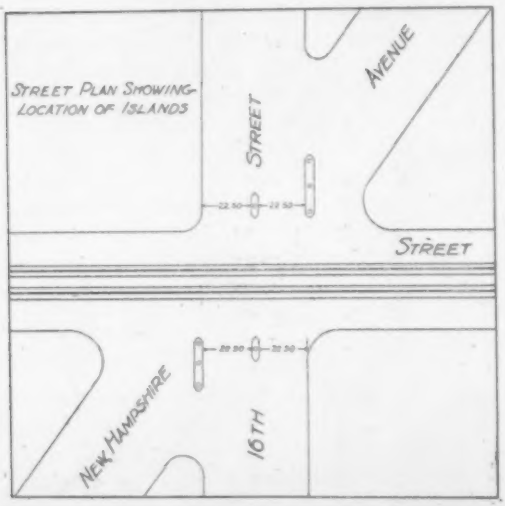
The Traffic Act provides a maximum speed limit of 22 miles an hour, instead of 18 as heretofore, and authorizes the Director of Traffic to increase this limit in certain outlying districts and on boulevard stop highways. This is the most radical change in the new law and gives motorists an opportunity to move a little faster than heretofore, where they can do so safely. The new law provides, however, that no vehicle shall be driven (1) recklessly; (2) at a greater rate of speed than is reasonable and proper, having regard to the width of the highway and the use thereof and the traffic thereon; (3) so as to endanger any property or individual; or (4) so as unnecessarily or unreasonably to damage the public highways. The new regulation of 22 miles an hour does not, therefore, permit a motorist to travel at all times and under all conditions at that speed, and he may be arrested for reckless or careless driving at a much slower speed.

The new regulations abolish the limit of 12 miles an hour at street intersections and 8 miles an hour while going around corners, but require instead that machines approaching intersections shall slow down and be kept under such control as to avoid accidents. The new regulations, therefore, make it possible, where the streets are clear and the vision is good, to increase the speed up to the limit provided by law, but at the same time require motorists to drive with due caution in crossing intersections and in going around corners where those intersections and corners are congested.

Owing to the predominance of accidents at street intersections, the new regulations give the right of way to pedestrians at street crossings; at the same time giving the right of way to motorists between crossings. Under the old regulations, a vehicle approaching from the right had the right of way. This is continued in the new regulations, with the additional proviso that vehicles intending to turn at an intersection must give the right of way to vehicles going straight, and that all vehicles entering the boulevard stop streets must stop before crossing or entering. The new rule also provides that all vehicles coming into a street from an alley, garage, or

other place of business, must come to a complete stop before crossing the sidewalk. Trucks with solid tires must not exceed a speed limit of 15 miles an hour and must not be overloaded, but when equipped with pneumatic tires they may travel at a speed not exceeding 18 miles an hour.

The new regulations permit the motorist to draw a few feet closer than heretofore to a street car which is loading or unloading passengers. Under the old rule, machines were forced to stop 15 feet behind a street car. The new rule reduces this to 8 feet. Machines do not have to stop where loading platforms or safety zones are located, at which places they may go by at slow speed and under such control as to avoid accidents.



Hand Signals, Headlights and Brakes

A single hand signal or a suitable mechanical or electrical signal has been substituted for the elaborate system of signaling heretofore practiced by motorists in making right or left turns or when stopping their cars. Instead of the three signals heretofore used, all a motorist has to do now when he intends to turn or stop, is to extend the arm straight out.

Headlights and brakes have an important place in the new regulations. The new rules require sufficiently bright headlights to illuminate a substantial object 200 feet ahead. Dimmers may be used on streets sufficiently lighted or in going over the brow of a hill. The new rules specifically prohibit dazzling headlights and provide that headlights shall be so adjusted that the beam will not rise horizontally above the center of the lamps. Bulbs of approximately 21 candle-power are required.

HANDLING TRAFFIC AT MULTIPLE INTERSECTIONS

The plans and photographs on this and the facing page show some of the special problems of traffic control at the multiple intersections in Washington. For these illustrations The American City is indebted to Majors P. S. Besson and R. A. Wheeler, Assistant Engineer Commissioners of the District of Columbia, and to the McGraw-Hill Book Company, of New York, publisher of Major Besson's book, "City Pavements." On this page the use of four platforms is shown at the junction of three streets, one of which has street-car tracks. The use of the temporary platforms shown in the photograph proved so satisfactory that permanent safety islands have since been installed as shown in the plan above

All the dealers in Washington have arranged to test headlights and brakes and to issue a certificate indicating that such work has been done. While these certificates do not absolve their owners from accidents which may result from poor lights or poor brakes, they are taken into consideration by the Traffic Court Judges to indicate that the person involved has made an effort to comply with the law.

Inasmuch as nearly half of all traffic deaths in Washington occur between 6 and 12 P. M., it is realized that something must be done to improve street-lighting conditions, which includes the headlights of automobiles.

The new rule concerning foot-brakes on automobiles provides that they must be capable of stopping a car from a speed of 20 miles an hour within 50 feet; and with hand brakes within 75 feet.

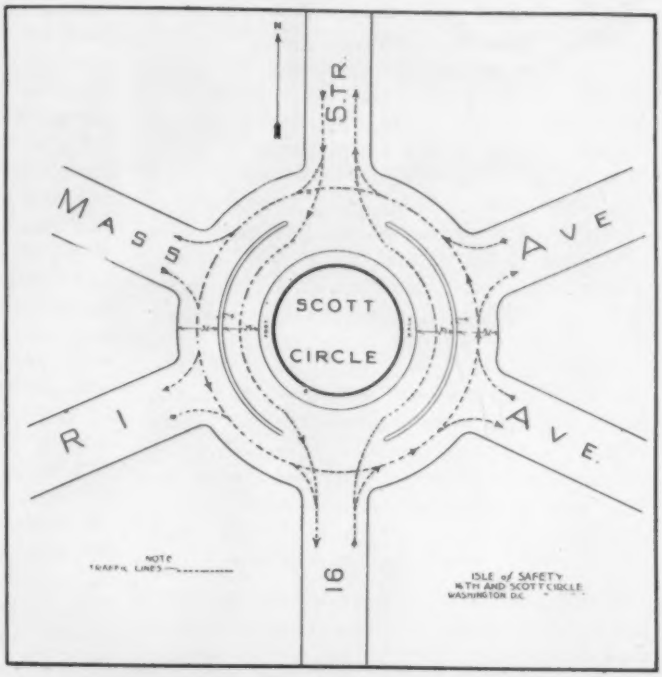
Parking Regulations

The new parking regulations provide for no parking at all in a portion of the congested area between the hours of 8 and 9:15 A. M., and on some of the arterial streets there will be no parking on the right-hand side in the morning coming in between 8 and 9:15 A. M., and on the right-hand side going out between the hours of 4 and 6 P. M. The main object of the no-parking restriction is to remove from the flow of traffic during the peak hour all obstructions caused by dead cars stored in the street. It may be of interest to note in this connection that Sixteenth Street, on which the new plan of limited parking during the rush hours, morning and afternoon, is now in effect, is one of the heaviest traffic streets in the world, carrying more traffic during the peak hours than Fifth Avenue, New York.

Examination of Drivers

The new traffic law provides for the examination of all drivers of automobiles as to their mental, moral, and physical qualifications to operate a motor vehicle in such a manner as not to jeopardize the safety of individuals or property. Hereafter no person will be permitted to obtain a license unless he is familar with the regulations and is able to demonstrate his ability to drive safely. No permit will be given to any one unless he can read simple signs and distinguish colors, and unless he has good eyesight. Deaf persons will be given special examinations by a corps of experts to determine their fitness to drive.

Schools of instruction in the operation of automobiles in accordance with the regulations may become a public necessity, and traffic instruction in various branches of the public schools may become a de-



Photograph by Army Air Service

ROTARY TRAFFIC AT SCOTT CIRCLE, WASHINGTON

The long concentric islands in the circular roadway divide the traffic into an inner and an outer track. Prior to the construction of the islands, confusion used to result due to the difficulty drivers had of knowing what course others were about to take. Matters were made worse by the large numbers of pedestrians that crossed the roadway during busy periods. At first, six small detached islands were tried. These were of some help to pedestrians, but traffic did not separate into sufficiently well-defined streams. The islands, as now installed permanently, are successful from the standpoint of both the pedestrian and the motorist. At the ends of the islands the roadway widths are each 30 feet. At the centers, the outside track is 31 and the inside 29 feet. This flattening of the arcs corrects an illusion and the two tracks appear of equal widths for their entire lengths. Installed in the roadway, at the south end of the east island and the north end of the west, are mushroom signals, as protection for the lamp-posts at these ends against careless drivers

sirable feature of public school education.

Synchronized Traffic Lights

We have let contracts recently for traffic lights on Sixteenth Street and for a synchronized control. The installation will be similar to that now in use in Syracuse, N. Y. The lights will be mounted by means of small brackets on the lighting poles at a height of about 10 or 12 feet above the pavement, with one set of lights at each corner, or four sets for each street intersection. All the lights will be a uniform height from the pavement and a uniform distance from the curb.

There will be no traffic tower. Control switches will be located in the fire-station on K Street, with individual controls for Lafayette Square, Scott Circle, U Street, and Columbia Road, which may be used during the rush hours. At all other times traffic will be handled throughout the entire system from one automatic switch in the fire-house.

Educational Work Proving Effective

It is believed that the educational work carried on through the newspapers has already improved traffic conditions in Washington. This is shown by the fact that during May and June there were fewer arrests for speeding than during the previous two months. This is probably due to several causes: (1) the educational work which has been done; (2) the compulsory jail sentences provided for in the new law; (3) the fact that under the new regulations the collateral system has been practically wiped out; and (4) the psychological effect of the night traffic court. Many drivers think but little of the $5, $10, or $20 deposit at the police station which may be forfeited, but they will think seriously when they know that in the future a summons for speeding or for any other violation means a summons to court, and that if the summons is not obeyed, a bench warrant will be issued for immediate appearance in court.

Traffic surveys, including the preparation of flow maps and spot maps indicating the points at which accidents occur, are now being conducted, and within the next few weeks it is planned to designate a number of boulevard stop streets and the establishment of automatic signals for the control of traffic.

In an attempt to impress the automobilists of Washington with the importance of courtesy on the streets, the writer said, in a recent radio address:

"Let me say to my motoring friends that courtesy is as cheap as the air we breathe. If you will practice it on other motorists and on pedestrians, you will find that it pays. When you are aware that a faster-moving vehicle is trying to pass, move to the right at the first opportunity and don't increase your speed. When you hear a horn, give way to the right. It may be a doctor on an errand of mercy. Let him pass with the spirit of "God speed." In approaching crosswalks on which pedestrians are attempting to cross, let us use our brakes more and our horns less. Give the pedestrian a chance.

"If we will all do our part in driving our automobiles with due consideration for the rights of others, we may contribute toward the saving of the life of some good man or woman or the precious life of some little child."

Home-Building by Limited Dividend and Industrial Corporations in Pennsylvania

THE Pennsylvania Housing and Town Planning Association has made a study of several community building projects which have operated in the state during the past few years. These limited dividend organizations have erected many new homes, as follows: Conshohocken Realty Corporation, 86 dwellings; Good Homes Company of Bryn Mawr, 12; Beaver Falls Housing Company, 20; Bradford Housing Corporation, 27; Johnstown Home Building Corporation, 17; Lancaster Home Builders' Association, 32; York Home Builders' Exchange, 50; Lewistown Housing and Development Company, 53; Milton Housing Corporation, 65; Octavia Hill Association, 83; Reading Home Builders' Corporation, 25; Wilkes-Barre Community Housing Company, 47; Williamsport Improvement Company, 100.

Some of these organizations operated at a loss, due, as admitted in the most cases, to poor business management. They all agree that a limited dividend housing corporation can operate successfully and eliminate many excess charges often made to the home buyer, if the activities are placed in the hands of a competent business manager responsible to the corporation for all details. Those corporations that have adhered strictly to business principles are now operating very successfully.

Industrial corporations have also assisted in helping workingmen to own their own homes in Pennsylvania. The Westinghouse Electrical and Manufacturing Company since 1918 has sold 550 homes to its employees in various parts of the state, varying in price from $3,300 to $8,000. These houses are being paid for in monthly installments which are equivalent in most cases to what the employees were paying for rent. Other companies such as the American Viscose Company, of Marcus Hook, and subsidiaries of the U. S. Steel Corporation have built houses and towns for their employees.

—From the annual report for 1925 of the Pennsylvania Housing and Town Planning Association, Philadelphia.

Bituminous Surface Treatments of Gravel Roads in Menominee County, Michigan

By F. L. Betts

Superintendent, Board of County Road Commissioners of Menominee County

IT is probably agreed by most of the users of the highways that a properly constructed, well-maintained gravel surface, treated with light oils, calcium chloride, or any satisfactory dust layer, presents a very acceptable riding surface and generally meets with public approval. But it has been the writer's experience that it is practically impossible to economically maintain such a surface if it is subjected to heavy traffic, and by "heavy traffic" I mean one thousand or more vehicles per twelve-hour day, without the use of a heavier binder than those already mentioned.

While many miles of our gravel roads can never be successfully treated with bituminous material, for various reasons, I believe that a large mileage can be maintained in this way and very satisfactory results may be expected, if care is taken in properly applying these treatments. During the last five years, Menominee County has successfully surface-treated, with a refined tar product suitable for cold application, 40 miles of road that can be classed as gravel surface.

Our construction methods differ somewhat from those generally used in gravel road construction, it being our intention to maintain the surface with tar treatments. We follow as closely as it is economically possible to water-bound macadam construction, the following being our construction specifications:

Description.—This road shall consist of a crushed gravel surface of the cross-section shown on the plans, constructed in two courses on the prepared subgrade, and each course compacted shall have the thickness shown on the plans.

MATERIAL

Crushed Gravel.—The crushed gravel used in this work shall consist of a well-graded product within the limits specified below, free from soft or disintegrated stone, dirt, or other objectionable matter and shall meet the following requirements:

French coefficient of wear, not less than 8
Toughness, not less than 8
Hardness, not less than 14

Base Course Crushed Gravel.—Base course crushed gravel shall be that portion of the crushed product which, when tested by means of laboratory screens, shall meet the following requirements:

Passing screen having 2½-inch circular openings, 100 per cent.

Retained on screen having 1½-inch circular openings, not less than 85 per cent.

Filler.—The filler shall consist of that portion of the crusher product which, when tested by means of laboratory screens and sieves, shall meet the following requirements:

Passing screen having 1½-inch circular openings, 100 per cent.

Passing screen having ¼-inch circular openings, 60 per cent to 80 per cent.

Retained on 8-mesh sieve, 60 per cent to 80 per cent.

Top Course Crushed Gravel.—Top course crushed gravel shall be that portion of the crusher product which, when tested by means of laboratory screens and sieves, shall meet the following requirements:

Passing screen having 1½-inch circular openings, 100 per cent.

Passing screen having ¼-inch circular openings, 40 per cent to 60 per cent.

Retained on 8-mesh sieve, 75 per cent to 85 per cent.

CONSTRUCTION

Base Course.—The base course construction shall meet the requirements as specified under "Water-bound Macadam Surface" (Class E), Paragraph 137, Michigan Specifications.

Top Course.—Top course construction shall meet the requirements as specified under "Water-bound Macadam Surface" (Class E), Paragraph 138, Michigan Specifications.

Maintenance During Construction.—Maintenance during construction shall meet the requirements specified under "Water-bound Macadam Surface" (Class E), Paragraph 139, Michigan Specifications.

You have noticed that we specify 1½-inch material in the top course and 2½-inch in the base, these being larger sizes than those used in Michigan State Highway Class "B" specifications for gravel surface, but smaller than those specified by the Department for water-bound macadam, our reasons for the selection of the sizes mentioned being to secure as high a percentage as is possible of

TYPE OF STORAGE BARREL USED FOR MAINTENANCE CAR

MACHINE SWEEPER CLEANING SURFACE ON MAINTENANCE WORK PRIOR TO TREATMENT WITH BITUMINOUS MATERIAL

crushed material and a minimum of round pebbles. We specify crushed gravel and do not allow the use of screened material only, although it might meet our requirements for size. We have found, by screen tests, that the sizes specified produce a very large percentage of crushed material that will key together when rolled, giving us a mechanical bond that could not be secured with round gravel.

The bins at our crushing plants are divided into three compartments. The first is the material passing through ¾-inch circular openings or dust; the second is the material rejected by the ¾-inch screen and passing through a 1½-inch circular opening which is used for top course; and the third is that rejected on the 1½-inch screen and passing through a screen having 2½-inch circular openings.

Construction Methods

Our construction methods are similar to water-bound macadam construction. Both courses are rolled and water-bound, the product of the first bin, or dust, being used as a filler for both courses. The only difference is that we place about an inch of dust on the top course after it has been completely filled. This is also watered and rolled. By doing this, we are able to maintain the surface with a light patrol grader until the following season after construction, when we apply the tar treatment.

It must be admitted that only pits having a very heavy stone content can supply the material we specify without a large waste of dust or fines. We have been fortunate, however, in having many pits where townships have wasted considerable yardage of oversized material by using grizzlys or screening plants on previous road construction, this waste being used to a good advantage in bringing up the stone content in our pit. We have also been able, on some occasions, to secure field stone from adjacent farms for the hauling.

We take advantage of shutdowns of the crushing plant by hauling in field stone, and in this way are able to keep our force employed continually.

To date, all of our construction has been done by county force. However, we have at this time a 10.1-mile project for next season's construction under contract at a price lower than that bid by the county.

Cost of Construction

To give an idea of the cost of this type of construction, I have here the unit price per square yard paid by the state on six projects in the county let during the last five years:

Year 1920—	28,752	square yards at	56	cents
Year 1921—	69,920	square yards at	79	cents
Year 1922—	32,000	square yards at	70	cents
Year 1923—	44,290	square yards at	67	cents
Year 1924—	42,194	square yards at	72	cents
Year 1925—	108,453	square yards at	70	cents

In some locations, it is possible to make use of the waste as cover for our tar treatments, it being composed almost entirely of clean, sharp sand and pebbles. In these cases, it is hauled to the road and stock piled.

Preparing Surface for Treatment

In cleaning the surface for treatment, we first use a 10-ton tractor of the crawler type and a 12-foot grader, setting the blade down hard enough to remove all loose material and screenings. This equipment is followed up by a mechanical sweeper, and it by a force of from 10 to 20 men with wire and reed push-brooms. Much care is taken to remove all loose material and to obtain a surface which is thoroughly compacted and one presenting more or less of a mosaic appearance; that is, the stone are well exposed, but at the same time well embedded and bonded into the road structure.

We never clean more surface than can be treated the same day, and at all times keep treating as close to the sweeping operations as possible. Our object is to prevent unnecessary traffic over the exposed stone that may cause it to become loosened and ravel. We believe that it is absolutely necessary to give much time and attention to sweeping if best results are to be expected. We do not attempt to patch holes or depressions in the

surface before the first coat of tar is applied. This work is done sometimes between the first and the second application and at times after the second treatment. We never attempt the distribution of bituminous material when the surface is in a wet or damp condition, and on cool days we heat the material to about 90 degrees Fahrenheit.

The first application of ¼-gallon per square yard is applied under pressure, and is allowed to set for two or three days, if possible, without cover, before the second ¼-gallon application is put on. The second coat is followed up immediately with a covering of pea gravel, stone chips or sand, which is spread by hand from small stock piles placed at intervals of about 25 feet along the shoulders of the road. The sweeping crew is used for this purpose.

It is the writer's belief that too much care cannot be made in the selection of cover material. Although we have used much sand and have obtained good results, I believe it is well worth the extra cost to use only clean, hard stone chips passing a ¾-inch circular opening, or pea gravel of a slightly smaller size. With such material, I believe, you can obtain a more even distribution of covering, besides the increased value to the wearing qualities of the surface. A broom squeegee is towed behind the distributor, which gives a uniform spreading of the tar and covers spots that may have been missed by a plugged nozzle or other cause.

Patching Material

Patching material is mixed at a central point on the job. The mixing is done with a small concrete mixer. For this work, we use bituminous material meeting Michigan State Highway Specifications for cold patch, and stone chips. The chips are graded from ¾-inch down and must be clean. The tar is used very sparingly, only enough to coat the chips. We have added sand to the mixture to fill the voids in the stone, but much care must be taken when small stone is being used not to add too much sand, as you are then in danger of securing a patch that will move under traffic. The holes and depressions in the surface are slightly overfilled with this material and are then tamped by hand and are painted very lightly with tar, then allowed to stand for a week or ten days, or until they become slightly open or porous at the surface, at which time they again receive a paint coat. In this way, we secure a patch that seldom moves or pushes under traffic. When a patch is found that has moved, it is immediately removed and replaced.

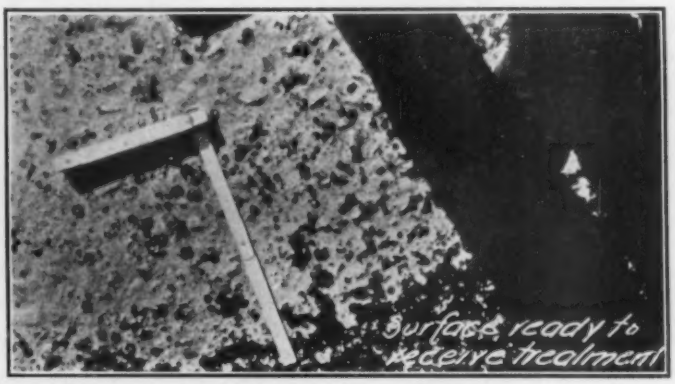
Sand patches such as are used in Maine and Wisconsin on gravel surface treatment have also been used by us for shallow patching with more or less success.

Use of Bank-Run Gravel

In addition to the 40 miles constructed under the method I have already described, we have about 4 miles of tar-treated gravel surface which was constructed of bank-run gravel. In this stretch of road, probably 40 per cent of the gravel would be rejected on a 2-inch screen and would pass a 3½-inch opening. The same method of treatment was used, and there is little difference in the appearance of the surface at this time; in fact, I should prefer treating a surface constructed with larger-sized stone, if not crushed and rolled, to one constructed with stone passing a 1-inch opening, for the reason that the larger stone are embedded in the road more firmly and are not so apt to become displaced under heavy traffic.

We have found it necessary to follow up the first year's treatment with a retreatment of a little better than a quarter-gallon application the following year, after which we have been able, in one case, to pass up three seasons without added treatments. However, we plan a retreatment every second year ordinarily.

Cleaning the surface and the cost of cover



SURFACE OF GRAVEL MACADAM ROAD READY TO RECEIVE BITUMINOUS TREATMENT
Note roughness of surface for keying with surface treatment

SURFACE TREATMENT OF GRAVEL MACADAM ROADWAY, SHOWING APPLICATION OF PRIMING COAT

material will vary on different jobs and are two most important items when first-class results are expected; $905.75 per mile on one of the roads where we applied an initial treatment last year is about average for the county for first treatment when we secure our cover locally and the patching is not excessive. Successive treatments, of course, are much less, as we use only about half as much bituminous material and there is little sweeping or patching to do.

We find that the tar, while fresh, picks up much more under traffic than is usual in macadam treatment. This, of course, is particularly true with steel-tired traffic. Our distributors being steel-tired, we apply a little over ¼-gallon in one application, where we would prefer to use the same amount in two applications on seasons following initial treatment.

On high, well-drained stretches of road having sandy or gravel subsoil, we have very little breaking or peeling of the surface in the spring. However, through swamp sections and particularly those serving horse-drawn loads, we have quite heavy patching if the break-up is slow and is accompanied by freezing and thawing weather. This is due to the softened condition of the gravel, and that cut and breaks in the tar surface caused by sharp-shod horses and steel-tired wagons will not heal as they do in warm weather.

Maintenance

After treatment, our maintenance is handled by motorized gangs consisting of from two to four men. It is generally necessary to use three or four men on a fifteen-mile section for two or three weeks in the spring, but as soon as the worst breaks caused by the spring break-up are repaired, the crew is reduced to two men, and usually the two men can keep a fifteen-mile section in very good condition through the summer. Their work, of course, includes shoulder repair, drainage, and all maintenance work on their section. Gangs are equipped with 1-ton trucks, having steel dump bodies with which they haul their tools, different sizes of cold patching stone, and a small amount of cover. The patrol gangs are equipped with small concrete mixers, and sufficient patch is usually mixed at one time for a month's work.

The tar used for skin patching or paint coats is stocked along the road in barrels which are provided for that purpose. These barrels are buried in the ground and covered.

The highway covered by this paper is State Trunk Line 15, which is the continuation of Wisconsin Trunk 15, a concrete pavement running from Chicago north through Milwaukee, Oshkosh, and Green Bay, Wis., and from that point is made up of several types of surfacing and continues north through the Upper Peninsula of Michigan to Keweenaw Point and brings into the Upper Peninsula a large percentage of the tourist traffic. The average traffic during the summer months for a 12-hour count is slightly over 1,000 vehicles,

A DISTRIBUTOR WITH BROOM SQUEEGEE ON MAINTENANCE WORK

and the peak load perhaps 3,000, and is composed largely of light cars with only a very small percentage of trucks weighing over 3 tons.

Conclusions

The following conclusions have been drawn by us from our experiences with this type of maintenance:

1. The surface must be well compacted and thoroughly cleaned of free material.
2. The stone content of the gravel surface must be high (at least 75 per cent) in order to secure proper adhesion of the bituminous material.
3. Drainage, or lack of drainage, is an important item in the success or failure of gravel treatments.
4. It is well worth the extra cost to use only first-class cover material.
5. The surface must not be moist or damp when tar is being applied.
6. If the road can be closed to traffic during and a few days after treatment, better results may be expected.
7. That no more road should be cleaned than can be covered the same day.
8. That larger gravel than that generally used for gravel surface is preferable.
9. (The most important perhaps.) That patrol or gang maintenance be placed on the road the day following treatment and that it receive continuous maintenance thereafter.

ACKNOWLEDGMENT.—From a paper presented at the Eleventh Annual Conference on Highway Engineering at the University of Michigan.

Helping Industry by Exempting Machinery from Taxation

To the Editor of THE AMERICAN CITY:

The recent budget introduced by the English Government provides for the exemption of machinery from taxation. This is in line with modern tendencies. Competition is keen between various countries. If industry is burdened with heavy taxation, it has difficulty in meeting the prices of its competitors in countries where the tax burden is light. In fact, the Chancellor in explaining the budget said that English manufacturers were at a great disadvantage because factories in certain other countries did not have to pay taxes on machinery.

In the matter of cost high land values are an important factor. A concern that must raise a large amount of money to buy a site has a heavy burden from the start. It must add to the cost of its product the annual interest charge. A factory that gets a site at a low cost is relieved of that necessity, and can sell its product at a lower figure.

In the same manner, an industry with valuable machinery which is assessed at full value for taxation must add the taxes paid each year to the price of its output. On the contrary, a factory located in a community that exempts machinery from taxation can sell at a price which is less the amount of such tax.

Municipalities, as well as countries, must consider how they burden industry or they will find manufacturing plants moving from their locality to places where they are not so burdened. A factory may be offered a free site in one town and find that it would not pay to accept the site because of the heavy tax on machinery. Recently a glass factory in western Pennsylvania planned an extension, but found that the machinery tax was too heavy; so to keep the plant the Borough Council exempted the addition from taxation. In 1911 the city of Pittsburgh secured a law relieving machinery from city and school tax. A few years later Philadelphia also exempted machinery. Manufacturing companies are also exempt from the state capital stock tax.

This is a great advantage to industries located in those communities. It can readily be seen that, other things being equal, their cost of production will be lower—and, after all, cost is what counts nowadays. A firm may have a great reputation, its product may be well advertised, but its customers will not always pay higher prices than they are quoted from other concerns.

If England exempts machinery from tax burdens, this idea will probably spread on this side and it may follow that buildings will also be exempt, as is done in a number of communities.

WILLIAM N. McNAIR.

Pittsburgh, Pa., July 6, 1925.

The Policeman

I HAVE never passed a lonely policeman, on a winter's night, who hadn't a cheery "Good evening" in answer to a greeting from me. That has told me something of a policeman's life. He is a lonely worker, and eager for any friendly token from another human being. He isn't the man to brag about his exploits, nor complain of his trials. Yet trials he has, in plenty. To me, the policeman is a living statue of duty. And most of his duties are distasteful to him. It is easy enough to perform a pleasant duty. It takes grit, and manhood, and character, to perform, year in and year out, the most unpleasant duty of all—the duty of everlasting watchfulness against the worst there is in human nature. That is why I mean it when I say it is a genuine privilege to speak face to face with the most faithful, the most useful, and the least appreciated public servant we have—the policeman, who keeps the mass of humanity to the rules laid down for good citizenship.

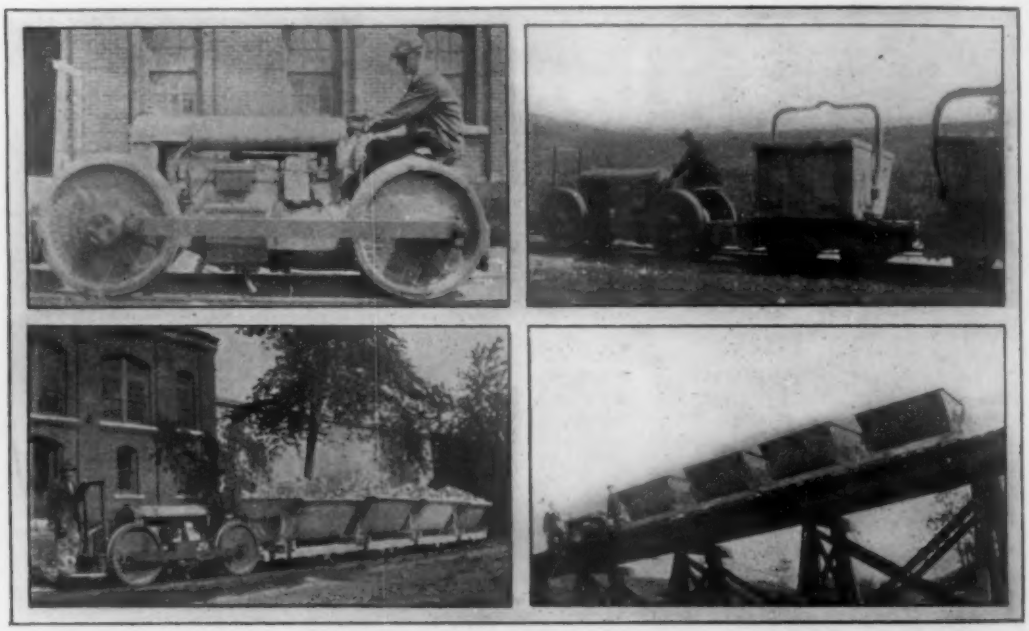
He walks the bad pavements for miles. He stands for hours in tireless watch. He helps the weak, and aged, and children. But there is yet one thing that marks the policeman off as more than a worker. We send that man into constantly bodily risk. His life is always in danger. The policeman is more than a man who toils and bears responsibility—he is a soldier.

—*James J. Davis, Secretary of Labor.*

Gasoline Locomotive Serves Providence Sewage Works

By J. W. Bugbee
City Chemist, Providence, R. I.

THE city of Providence, R. I., operates about three-quarters of a mile of 30-inch gage railroad at the sewage disposal works at Fields Point. Over this road sludge cake is carried from the filter presses to a scow at the municipal wharf, and quicklime, in bulk, is transferred from the standard-gage siding to the bins in the chemical house.



SCENES AT THE FIELDS POINT SEWAGE WORKS, PROVIDENCE, R. I.
Upper left—Adamson-Fordson industrial locomotive. Upper right—Hauling sludge to dump. Lower left—Returning with load of lime. Lower right—Backing up the trestle, preparatory to dumping the lime

The motive power originally used was a 7-ton steam locomotive, but this was found to be too small for the work, and for the last fourteen years a 9-ton steam locomotive has been in service. At the beginning of the present year this was replaced by a 3½-ton Adamson gasoline locomotive, which has been doing the work very successfully since that time.

Sludge from the filter-presses falls into 2-yard buckets, each bucket being carried on a small four-wheeled flat car. Four or five of these cars are hauled in a train, the distance between the press-house and the scow at the municipal wharf being 1,800 feet. Approximately 100 tons of this sludge cake are produced during each working day.

Lime for use in sewage precipitation and in sludge treatment (about 50 tons per week) is received in bulk, in box-cars, which are placed on a spur-track, near the plant, and the lime is carried the remaining distance to the storage bins, about 1,200 feet, in V-bottom dump-cars, of about 2½ tons capacity, four of these cars making up a train. On both the sludge haul and the lime haul there are right-angle turns of 50-foot radius, and on the lime haul there are three stretches of 3 per cent grade, one of these being a trestle 250 feet long, which must be climbed with the locomotive in reverse.

When the locomotive was put in service, the sand-boxes were on the extreme forward end

of the frame, making the sand available only when going forward, and as the engine must run backward when ascending the chemical-house trestle, it was necessary to change the position of the sand-boxes. The boxes of the discarded 7-ton locomotive were clamped to the side frames of the Adamson, midway between the forward and rear wheels, and the slide-gate in the bottom of each box was connected by a series of rods to the tractor steering mechanism, which had not been removed when the tractor was installed in the locomotive frame. A short lever was substituted for the steering wheel, and a very slight movement of this lever serves to operate the sand-boxes.

Gasoline consumption has averaged about 8 gallons per day of 9 hours.

Mother's Kitchen in a City Park

By Genevieve Fox

AT least one city in the country has solved the family picnic problem to the joint satisfaction of all concerned—grown people, youngsters and park officials. That city is Omaha, Nebr., whose park officials consider picnics so important a part of family life in summer that they have provided in their prettiest park a completely equipped kitchen. In this kitchen—three sides of which are open to the breezes—two huge coal ranges invite the picnicker to cook a square meal. Fires are kept burning from early morning until evening all summer long. Tin dishes are provided for the picnickers—coffee-pots in family sizes, frying-pans, baking-pans, tin plates, knives, forks and spoons.

The best thing about this kitchen is that *you don't have to wash your own dishes.* As you sit at the long tables under the trees and eat to the accompaniment of the thrushes' song, there comes no disturbing thought of sordid tasks to come. The sign over the cupboard modestly requests the picnicker to return his dishes. And that is all one does have to do—return them and let someone else wash them, bacon fat, coffee grounds and all.

As one would naturally expect, picnicking is popular in Omaha. It was an evening in early May when I cooked bacon and eggs over one of those coal ranges—a little ahead of the official picnic season. It was not a Saturday or a Sunday, either. But both ranges were full of coffee-pots and frying-pans. "Sometimes we have as many as four hundred here on a summer Sunday," said the little woman who presides over the community kitchen. "I have to have someone to help me wash dishes, then. Of course they don't all come at once, though. They begin coming at five or six in the morning and they keep on coming till after sunset." Auto tourists going through the city stop for a good hot meal. Golfers from the municipal golf course nearby make use of it. Hikers can roam over the prairie unencumbered with dishes and end their tramp with hot coffee. Most of all, the kitchen is used by Omaha families as a means of making comfortable family picnics possible, where father can have a real meal instead of a hand-out, where mother can have a rest from dish-washing and where the children can swing in the swings, ride on the merry-go-round and frisk over the grassy slope.

A KITCHEN FOR TOURISTS IN AN OMAHA PARK

Selling City Planning to Dallas

ONE of the most interesting of the many local movements now under way to create public sentiment for carrying out a city plan is to be found in Dallas, Texas. For fifteen years Dallas has profited comparatively little from the comprehensive city plan prepared by the late George E. Kessler in 1910 and his additions of 1919-20. As in the case of many another forward-looking project in other cities, Dallas had given some thought to looking before it leaped—but had not done enough actual leaping.

To help overcome this inertia, there was organized in 1924 the Kessler Plan Association, "for carrying out of the entire Kessler Plan and the scientific development of every part of Greater Dallas." The Association's campaign is in active operation, and its Secretary, John E. Surratt, has furnished for the benefit of THE AMERICAN CITY's readers the following outline of recent activities:

"We in Dallas are very much interested at this time in two problems, namely, selling the Kessler program to the people of Greater Dallas and working out a plan for financing the entire program.

"Some splendid things have been accomplished under the Kessler Plan, including the removal of the tracks of the Texas and Pacific Railway from Pacific Avenue and turning Pacific Avenue into a beautiful retail street; the elimination of four unsightly passenger railway stations in four different sections of the city, and erecting in their place a beautiful union station with a plaza in front; and a certain amount of progress in acquiring park land and in opening streets. Hardly more than 10 per cent of the entire program has been carried out during these fifteen years, however. On this basis it would take us 150 years to carry out the entire program.

"In selling the program to the people we are issuing literature, holding meetings all over Dallas, getting column after column of publicity in the papers, as well as getting in behind certain street-widening projects and other definite features.

"One of the chief methods for selling the program will be through a text-book on civics to be used in the seventh grade of our public schools. Dr. J. F. Kimball, for ten years superintendent of the Dallas public schools, is giving his time without charge in the preparation of this text-book. The School Board has already agreed to use the book; the school teachers are looking forward enthusiastically to its use; and we feel that through this text-book the men and women of to-morrow will get the vision of a Greater Dallas and will be the ones who will put over the entire Kessler program.

"We now realize that if something of this kind had been begun at the time Mr. Kessler's report was adopted in 1910, and if the boys and girls at the age of 12 to 15 had been taught just what the Kessler program meant to Dallas, to-day most of the men and women in Dallas of 27 to 30 years of age and younger would be thoroughly familiar with the program, and its execution would follow just as day follows night.

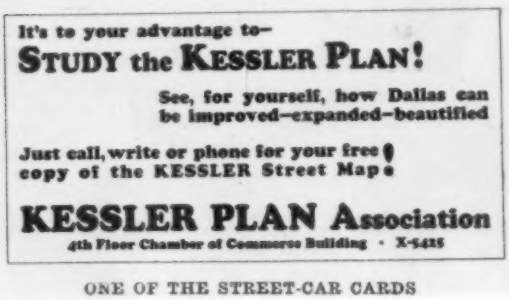
"Dr. Kimball's book will not only explain the Kessler program, but it will give to the boys and girls in an interesting, readable way authentic information about Dallas and its government, Dallas County and its government, the history of the city and the county, and their future possibilities.

"Dr. Kimball has spent several months of work and will spend several months more. He is making free use of the files of THE AMERICAN CITY, of the annual reports of the National Conference on City Planning, of such text-books on city planning as that used in Chicago, as well as making a close analytic study of Mr. Kessler's work and report on Dallas. Dr. Kimball resigned as Superintendent of Schools last year and is giving his free time to this work as a contribution to Dallas. He says that Dallas was good to him and he wants to do something for Dallas. We feel that he is making a contribution that will prove of greater value than would a $1,000,000 gift.

"We have also hit upon another rather effective method of getting the people to study the Kessler program. Back in 1920, Mr. Kessler, assisted by Major E. A. Wood, our present City Plan Engineer, prepared a comprehensive map, covering all sections of Greater Dallas, indicating seventy-two streets recommended for opening and widening and showing the relation of the proposed straightening and leveeing of Trinity River to the street and traffic problem. Unfortunately, the map was not published at that time. The Kessler Plan Association, therefore, as one of its first undertakings, reproduced the map on sheets 26 x 36 inches in size, and announced through the newspapers and through cards placed in street cars and in show windows that a copy would be given free to any one who would promise to study it himself and then post it where others might examine it.

"The first two editions of 500 copies each have been exhausted, and we already have on hand over 1,000 requests for copies of the third edition, now being published. The new edition will be printed on larger sheets, allowing for the reproduction on the margin of a series of "before" and "after" photographs of streets that have already been developed according to the plan. Luncheon clubs and other local organizations are cooperating with us by enclosing in all letters and notices to their members, cards announcing that copies of the map are available.

"The second big problem of interest to us is that of working out a plan for financing the entire pro-


It's to your advantage to—
STUDY the KESSLER PLAN!
See, for yourself, how Dallas can be improved—expanded—beautified
Just call, write or phone for your free copy of the KESSLER Street Map
KESSLER PLAN Association
4th Floor Chamber of Commerce Building · X-5425

ONE OF THE STREET-CAR CARDS

Can Dallas Learn a Lesson from St. Louis?

THE people of St. Louis were in about the same condition as are the people of Dallas. For years they had "talked about" their city plan and "talked about" the importance of putting the whole plan over. Like Dallas, they had made real progress on some features of the plan; had accomplished some things of value. But the growth of the city was so rapid that they were falling behind continually. They had never taken hold of a plan as a whole, and the majority of the people did not have the city-wide point of view. They had made two or three efforts to work out a city-wide basis and had failed on a couple of bond issues.

They had failed because the rank and file of the people had never been "sold" on the plan as a whole and had not been consulted by the leaders who had made up these previous programs. Perhaps the chief cause of their failures was due to the fact that all their efforts had been expended on local sectional projects.

Finally they called in representatives of every organization in St. Louis, including the Chamber of Commerce, Real Estate Board, Bar Association, Retail Merchants, Wholesale Merchants, Labor Unions, and all local Improvement Leagues. When all of these had come together, they said: "Now let us look 50 years ahead and think of all things that should be done for the development of St. Louis during the next 50 years."

Many Improvements Wanted

One man said: "We need a new court-house." Another favored a new city auditorium. Another wanted more street paving. Other needs suggested were improved water-supply, new storm sewers, new sanitary sewers, more hospitals, improved fire department, public market, improvement of parks, and additional parks and playgrounds, grade crossings and viaducts, the opening and widening of streets, and so on.

The list amounted to almost $100,000,000.

How to raise this much money without working a hardship on the taxpayer, and how to spend this much money without waste, were problems which must be solved before anything else was done.

First, all non-essentials were eliminated. Then a careful estimate of the cost of each project was made.

Cost Carefully Apportioned

As an illustration of the care used in making estimates, there were on their list 37 streets to be opened and widened; the cost of each was carefully estimated and the percentage which the city should pay as well as the percentage which the benefited property owners should pay was determined. On one street the city's share was $900. On another the city's share was $15,000. On another the city's share was $3,355,345. Before submitting bonds to voters, definite figures were prepared, not only on street widening but on all projects. Street-widening bonds totaled $8,650,000. This was for the city's share. Benefited property owners pay their share, which ranges from 20 per cent to as high as 99 per cent of the cost of the particular street: $2,500,000 was set aside as a revolving street-widening fund. This is to enable the city to advance money where a case is in court and collect it back later from benefited owners, thus speeding up the work. This fund would remain the same year in and year out.

St. Louis has a river similar to the Trinity River. The St. Louis river is known as River des Peres. This river extends 18 miles through the city and was in a fearfully unsanitary condition. The plan is to straighten and shorten the river and confine it in a channel. In this case also, benefited property owners pay their pro-rata share of the cost, which ranges from 57 per cent to as high as 89 per cent. The city's share of this cost will be $11,000,000.

Tax Rate Held Down

A safeguard adopted prior to the election was to determine the amount of bonds that would be sold each year for a period of ten years—1923 to 1933. This was to hold down the tax rate involved in these bond issues, a rate which, according to estimate, will never be over 47 cents on the $100 value, and this high point will not be reached till 1933 and will last for that year only.

Another safeguard adopted was to determine the order in which different projects would be taken up and put through. Knowing definitely the amount of money available for each of the next ten years and knowing definitely the amount the city was to contribute to each project, they were able to plan their work in the way that will give them the biggest results for money spent.

The proposed program of the bond expenditure for St. Louis is:

Year	
1923	$3,000,000
1924	5,000,000
1925	6,000,000
1926	7,000,000
1927	7,000,000
1928	8,000,000
1929	8,000,000
1930	9,000,000
1931	9,000,000
1932	8,000,000
1933	6,000,000
Total	$76,000,000

This does not include the $12,000,000 water-works bonds, to be paid out of a special fund from water revenues.

Bond Issues and Funds Supervised

Another interesting feature of the St. Louis plan is the Citizens Bond Supervisory Committee, which is to last until all bonds are sold and the money spent. The Committee and the public are to have all facts each time bonds are sold and each time a contract is let. The Committee has sixteen members; eight are permanent members, and eight are to be the "then" presidents of the eight leading organizations of the city. This plan guarantees that the civic leaders of St. Louis will always know how these bonds are being issued and for what the funds are being spent.

What the St. Louis Bonds Are For

Establishing, opening and widening streets	$8,650,000
Plaza in front of Union Station	2,600,000
Paving, repaving and improving streets	5,800,000
Electric lighting, city-wide	8,000,000
New court-house	4,000,000
Construction and reconstruction of sewers	8,000,000
River des Peres sanitation purposes	11,000,000
New parks and playgrounds	2,500,000
Improvement of existing parks and playgrounds	1,300,000
Aquarium in Forest Park	400,000
Municipal lighting, heating, and Mechanical Building	1,000,000
Hospitals and institutions	4,500,000
Municipal auditorium and community center	5,000,000
Memorial Plaza and Building	6,000,000
Fire department purposes	772,500
Grade crossings and viaducts	1,600,000
South approach to Municipal Bridge	1,500,000
East Side approach to Municipal Bridge	1,500,000
Armory, National Guard of Missouri	1,000,000
Public markets	1,250,000
Total of bonds involving taxation	$76,372,500
New water-works, to be paid for out of water revenues	12,000,000
Total	$88,372,500

Items 1, 3, 7 and 16 represent the city's share of the cost of these different projects. Item 19 failed to carry. All others received two-thirds majorities.

Dallas has a wonderful City Plan. It represents thirteen years (1910-1922) work on the part of George E. Kessler. It is as important, however, to plan ahead on your expenditures as it is to plan ahead on your streets and on your parks.

St. Louis has a plan to guide her in developing her streets, her parks, and her rivers. St. Louis also has a plan to guide her in the money she will spend each year for the next ten years. This plan determines the amount that will be spent on each project, and it also determines the amount of bonds that will be sold each year and for what the money will be spent.

THIS STATEMENT, WITH SOME ADDITIONAL DATA ON LOCAL PROBLEMS, IS BEING CIRCULATED IN DALLAS AS PART OF THE EDUCATIONAL CAMPAIGN OF THE KESSLER PLAN ASSOCIATION

gram. Believing that definite accomplishments in another city would be of special interest to our civic leaders, we prepared the accompanying outline of what has been done in St. Louis. [See page 141.] This was based on data secured from St. Louis and from its city planner, Harland Bartholomew, who had recently visited Dallas.

"Any reader of THE AMERICAN CITY can secure for 10 cents, from *The Dallas Morning News*, a little pamphlet containing a series of articles recently written by Louis P. Head, telling of the Kessler Plan, what has been accomplished and what is yet to be accomplished."

An Ordinance to Clear the Way for Fire Apparatus

(Suggested by *Fire and Water Engineering*)

Be it ordained by the Council (Board of Commissioners or Aldermen) of the City of ——

Section 1. Vehicles of the Fire Department, Police Department, Salvage Corps, U. S. Mail, emergency ambulances, both public and private, and emergency repair of all public utility companies, and funeral processions shall have the right of way over all traffic in any street or other public place and through any procession, provided, however, that the Fire and Police Department vehicles shall have the right of way over every other kind of traffic whatsoever, and provided, further, that the Fire Department shall have the right of way over Police Department vehicles, and all others shall have right of way in the order named.

Section 2. No vehicle shall follow closer than 300 feet of any fire apparatus while the same is answering an alarm of fire, and shall not approach said fire apparatus or park said vehicle within 1,000 feet of the same after said apparatus has arrived and stopped at the destination of a fire.

Section 3. Street cars, upon the approach of such fire or police apparatus, shall be stopped immediately if between street intersections.

Section 4. The driver of any vehicle shall not enter any street intersection if police or fire apparatus is approaching such street intersection within a distance of 300 feet.

Section 5. No driver of a piece of fire apparatus shall operate the apparatus over any street or public highway of the city recklessly, or at a rate of speed greater than is reasonable and proper, having regard to the traffic, use of the highway, or so as to injure the property and life or limb of any person, and with due regard to the urgency of the call.

Section 6. It shall be unlawful for any person to drive, or cause to be driven, any vehicle over or across any fire-hose or hose used for conducting water to any fire from any hydrant or fire-engine in the city. But this section shall not apply to any ambulance when answering an emergency call or transporting an injured person to a hospital.

Section 7. The parking of vehicles is prohibited within 20 feet of a fire-hydrant, 25 feet of a crosswalk at a street intersection, 75 feet of a street intersection where a trolley car stops to take on passengers, 15 feet of the entrance of any place of public assemblage, and 25 feet on both sides of the street from any fire station, except while discharging or taking on passengers and the engine is running and the driver available.

Section 8. All persons operating automobiles or other vehicles upon the streets of the city, who shall lock their vehicles, shall have the same provided with a good lock installed in a manner that will allow the towing or moving of the vehicle when necessary by the Police or Fire Department.

Section 9. All railroad companies operating railroads or passing through the city, and all engineers or other persons operating engines, hand-cars or other cars on said railroads or streets, shall, upon approaching the vicinity of a fire stop their engines or cars until they have ascertained from the chief or his assistants that they can pass without in any way interfering with the Fire Department.

Section 10. The parking of automobiles or other vehicles in alleys of the congested value district is prohibited, except only long enough to be loaded or unloaded, and during such time the front wheels of such vehicles shall be turned in the direction in which traffic is proceeding.

Section 12. It shall be unlawful for any person, firm, or corporation to cause or permit any automobile or vehicle to be operated upon the streets of the city when such vehicle is painted a bright or fire red or is equipped with a gong or siren adopted by the Fire Department.

The following section is not strictly a part of this ordinance, but it is so closely connected with the operations of the fire department that it is included as a suggested form to be inserted in a general traffic code.

Section 13. No taxicab while waiting service by passengers shall stand on any public street or place except on such stands as may be designated by permit duly issued by the Police Department; nor shall any driver or chauffeur of any such vehicle seek employment by repeatedly and persistently driving his taxicab in and about a short space. The driver of a taxicab shall after discharging a passenger return as quickly as possible to his regular stand or other convenient stand and take his place in turn; the general cruising for passengers is prohibited.

Section 14. This ordinance shall take effect and be in force from and after its passage and publication as required by law.

Infant Mortality Rates Lowest in 1924

THE baby death-rate in the cities of the United States for last year reached the lowest point ever attained. According to the infant mortality report published annually by the American Child Health Association, New York City, the combined rate for 629 cities in the Birth Registration Area was 72.2 for 1924 as compared with a rate of 78 for 1923. These figures indicate that 72 babies out of every 1,000 born during 1924 died within their first year.

The Birth Registration Area of the country consists of 33 states and the District of Columbia.

Recent Theories in Street and Block Planning

Interior Parks for Residential Frontages

Widened Streets for Neighborhood Stores

By JACOB L. CRANE, Jr.
Engineer and Town Planner, Chicago

OUR theory has come to be that, on strictly residential streets of comparatively good character and with fairly deep lots, it is no longer advantageous to face the houses toward the street. Instead, the street has become almost entirely a service way on which the rapid motion, noise, and danger of commercial activities are concentrated. Therefore, to get the privacy and seclusion desirable for home environment, houses may just as well put their service quarters toward the street and face inward from the street. This theory leads logically to the interior park maintained cooperatively by the property owners in any given block.

These points are illustrated in Figs. 1 and 2, which also show other features of good subdivision planning, such as connecting ways between these interior parks; smaller interior playgrounds; school sites; neighborhood parks set aside; direct access to the arterial highways; and limited neighborhood business centers with widened streets on the business frontage.

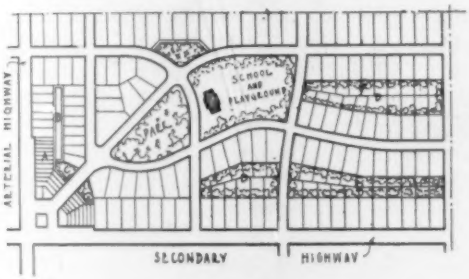


FIG. 1. 160-ACRE TRACT WITH SERVICE QUARTERS TOWARD THE STREET
A, Business corner. B, Playground. C, Public parks. D, Interior parks

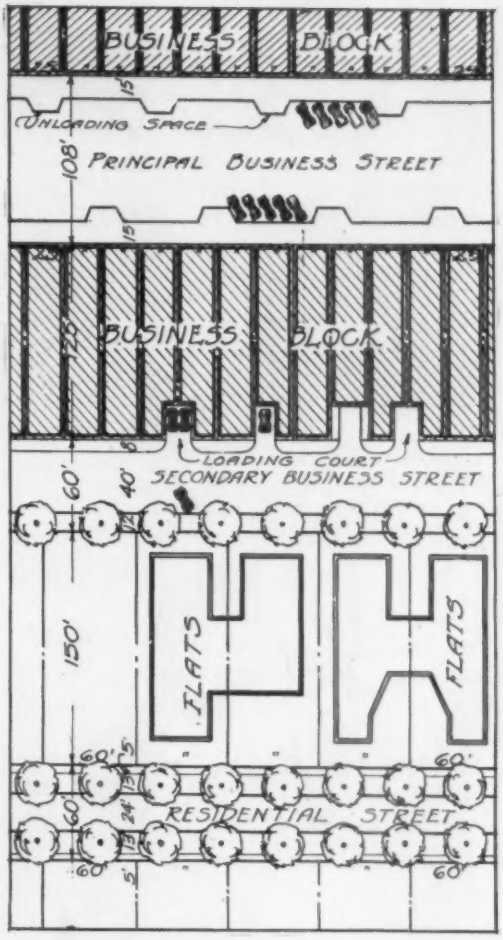


FIG. 3. BUSINESS ALLEY DEVELOPED INTO SUPPORTING STREET AND CREATING DOUBLE BUSINESS FRONTAGE

FIG. 2. PART OF A LARGE SUBDIVISION
A, Interior park. B, Playground. C, Footways

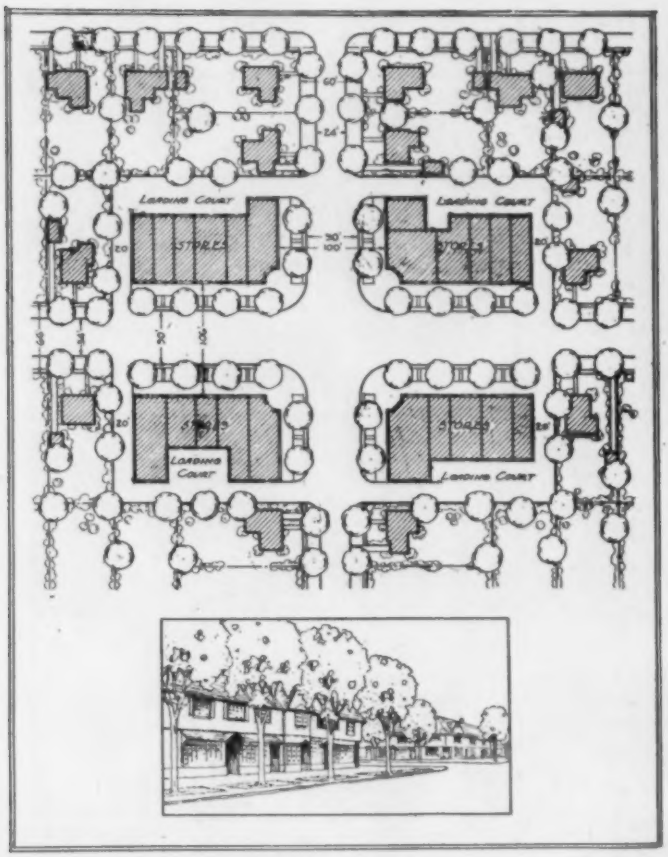


FIG. 4. SUGGESTED TYPICAL NEIGHBORHOOD BUSINESS CENTER

We believe, and a number of subdividers have come to agree with us in laying out their property, that a widened street along business frontage gives greater value to the business lots for the land dedicated in the street than the same land would be worth at the back end of business lots. Neighborhood stores are rarely more than 50 to 75 feet deep, and the land beyond that is mostly wasted. By setting the building back 15 or 20 feet from the original street line, there is still plenty of room on the business lot of ordinary depth, and very great advantages are secured in the street. First, it becomes possible to widen the pavement to allow for parking machines in front of the stores. This feature can readily be "sold" to purchasers of business lots. Second, the stores are set back so that they do not encroach to anything like the ordinary degree upon the residential building line in the same or neighboring blocks. All of these schemes here illustrated have been utilized in subdivision plans and have been found to be practical.

A double business street is illustrated in Fig. 3. In business sections we have found that there is a demand to widen the alleys through the blocks to provide for parking of machines (see THE AMERICAN CITY for March, 1925, page 337), for greater facility in loading and unloading goods, and finally for some flowing traffic. This leads to the idea of a 40-foot pavement in alleys, to be used practically as a relief street. The sidewalks were required to give access from the pavement to any store building. This gave us virtually a street at each end of each business lot. The advantages are: first, that we get nearly twice the street area and traffic parking capacity that we get with the usual single system; and, second, that each business lot has double frontage, thereby increasing its value and making it possible to utilize the otherwise dead space at the rear end of business lots and business buildings. The difficulty which this arrangement creates in the matter of loading and unloading goods from the alley-street is fairly well overcome by the arrangement of loading courts illustrated in the sketch. Other types of loading courts for a suggested neighborhood business center are shown in Fig. 4.

These ideas have developed out of the struggle to adapt subdivision methods and the use of property to present-day street traffic requirements, and they seem to indicate the likelihood of important changes in our conception of the arrangement and use of streets and lots.

Land Subdivisions and the City Plan

is the title of a valuable pamphlet by Herbert S. Swan and George W. Tuttle, published as a supplement to the National Municipal Review for July, 1925. An important feature of this 24-page pamphlet is a set of proposed rules for the guidance of planning commissions in approving new subdivisions.

Hexagonal Blocks for Residential Districts

Excerpts from an Address Before the Recent International Town, City and Regional Planning Conference

By NOULAN CAUCHON

Consulting Engineer, Ottawa; President, Town Planning Institute of Canada

THE hexagon, as shown on the schematic diagrams, is submitted as a principle of subdivision for residential cells in the civic tissue; advisedly adjustable in design to circumstance of function and topography; a geometrical translation of a biological analogy. The north pointing of the hexagon, as a health provision, insures sunlight to both sides of all streets, in all seasons, at all latitudes.

The hexagon cell is conducive to community life in that it permits of surplus backyards being collectively a children's playground. Also where opportunity is given the landscape artist to treat the interior as a park, the charm of quiet and repose can be realized in endless variety. The hexagon residential cell radiates six streets, more than sufficient; whilst the ordinary rectangular block radiates a needless over-costly and wasteful opportunity of eight channels.

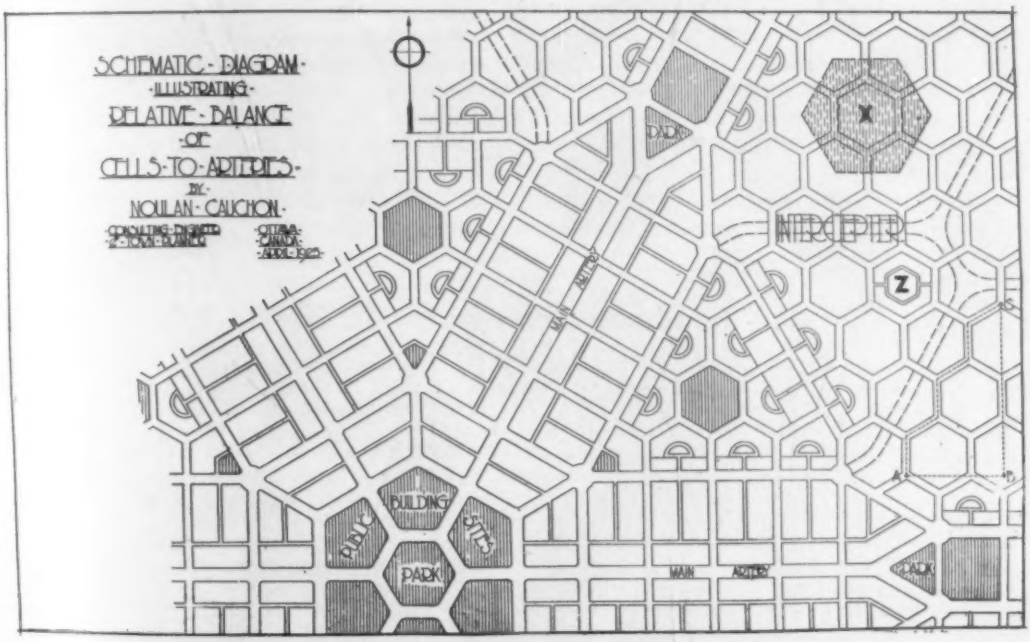
The residential honeycomb has advantageous properties in demanding less street length to given area served; in its three-way street junctions, which display the minimum number of collision points; in having wide (120°) angle turnings and longer visibility as against right-angle (90°) turn and restricted view; more safety and greater speed. The four-way street intersection is nevertheless recommended for business intersections by reason of its facility for controlling heavy cross traffic and of grade separation as required.

From the point of view of art—expression of architecture in particular—the residential streets of the honeycomb afford ever-changing vista and focal point for effective treatment and display, secured free of the structural and other difficulties which obtain on curved streets, both above and below ground.

In these diagrams, which, I repeat, are only schematic, an endeavor has been made to demonstrate the virtues which lie in the properties of the hexagon as a residential cell and of the rectangular block for business.

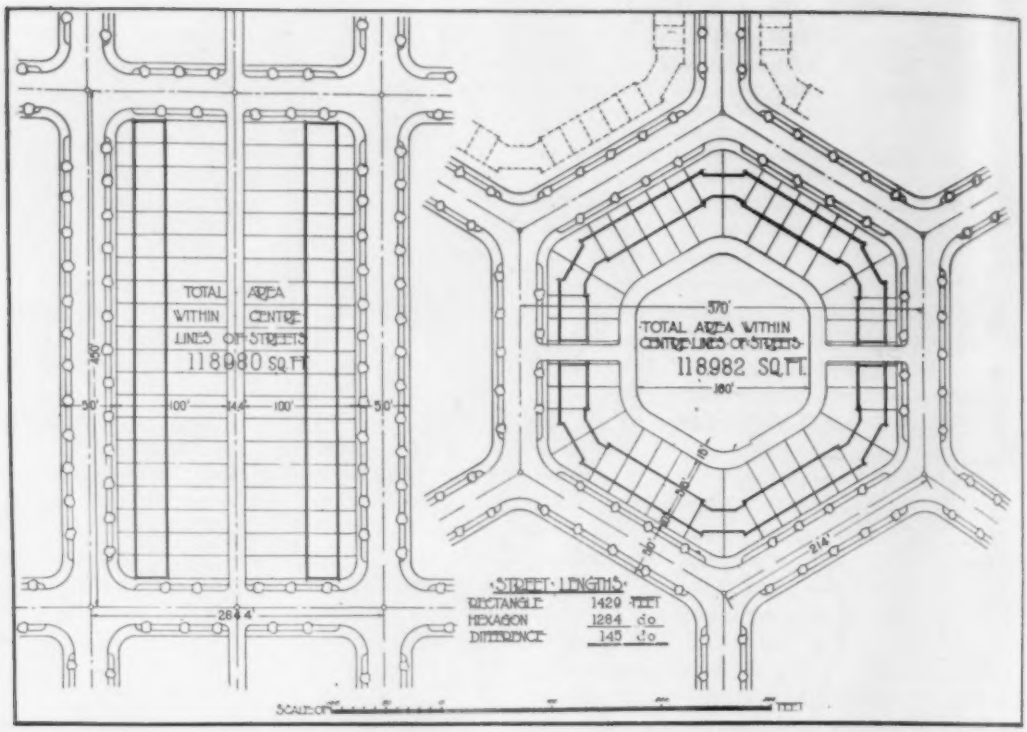
The Arterial Highway

Arterial highways inside and outside cities should answer to the exercise of a function



ILLUSTRATING THE THEORY OF A BALANCED RATIO OF RECTANGULAR BUSINESS BLOCKS TO HEXAGONAL RESIDENTIAL CELLS, AND THE PRINCIPLE OF TRAFFIC INTERCEPTER

The "intercepter" for through traffic is an independent right of way, free from frontages and from cumulative local traffic opening upon it. The civic center is so planned as to baffle the flow of traffic where it tends toward over-concentration and congestion. "Z" shows the subdivision of a unit residential cell with its central playground. "X" shows the system of providing for large interior areas for non-tax-paying institutions, leaving all street frontages for tax contribution



A COMPARISON OF RECTANGULAR BLOCKS AND HEXAGONAL CELLS

organically balanced to the cumulative ebb and flow of the local tide of population. They should not be overburdened with any regular through transportation, which should be the prerogative of steam and radial services.

Long-distance and even suburban motor traffic should be consigned to independent rights of way—an "express" system relatively free from frequent adits and exits. We are planning to bring this about in Ottawa on obsolete railway rights of way. It is planned to apply the principle of the intercepter upon 30 to 40 miles of railway right of way obtainable; the embankment will be widened to carry three radial tracks and a motor way on each side; all cross traffic will be restricted to grade separations as now existing and others as required.

An Offer of Graduate Fellowships in Safety Education

THE National Bureau of Casualty and Surety Underwriters offers for the academic year 1925-1926 three graduate fellowships of $1,000 each for the study of special problems in the field of safety education. The subjects are:

1. The grading of subject matter for safety instruction in the elementary schools.
2. The preparation of a course of study in safety education for normal schools.
3. A study of the relative importance of positive vs. negative methods of instruction.

These fellowships are offered in order to secure expert solutions of problems which confront the education section of the National Safety Council in its work; a work which is also financed by the National Bureau. The first problem is that of adapting the subject matter of safety instruction in detail to the needs of the elementary schools; the second is the general problem of organizing methods of teaching safety; and the third is a far there is danger of developing a fear-complex in the child, and into the more general question of the relative desirability of positive and negative methods of approach in this field.

Applications should be sent to Albert W. Whitney, associate general manager and actuary, National Bureau of Casualty and Surety Underwriters, 120 West 42nd Street, New York City, and should be accompanied by pertinent information with regard to the experience and purposes of the applicant, references and, what is particularly important, a detailed plan of how he would propose to go to work to solve that one of the three problems listed in which he is particularly interested. The applicant should also state at what university he would prefer to carry on his studies. Mature students who have had some years of teaching experience are desired, and it is presumed that students will wish to offer the result of the research as a thesis for the degree of

Fire Hazards in Public Buildings

An Analysis of the Chief Causes of Fires in Public Buildings, and Corrective Safety Measures and Protective Facilities Which Should Be Adopted

THE chief causes of fire in public buildings, practically all of which are preventable or partially preventable, follow:

Defective installation of heating and ventilating apparatus, including piping; defective chimneys and stove-pipes passing through combustible partitions, walls and roofs.
Poor housekeeping, rubbish, ashes, etc.
Smoking and improper use of matches.
Lack of protection against outside exposure.
Improper installation and use of gas appliances.
Hot ashes and coals and open fires.
Defective electrical installations.
Lack of lightning protection.

Hazards contributing toward the spread of fire are:

Unprotected floor openings.
Lack of fire-stopping.
Large undivided areas.
Excessive heights.
Combustible roof coverings.
Skylights and ventilators which permit entrance of sparks.
Cracked and bulged walls or walls of inferior construction.
Ceilings, walls and partitions sheathed with flimsy materials.
Poor foundation or lack of foundation.

Because of the large number of people often occupying public buildings, additional hazards contributing to panic in the event of fire may be found in these structures. Among these are:

Insufficient number of exit doors.
Lack of horizontal exits.
Exits adjacent to open shafts and otherwise improperly arranged.
Exit doors not equipped with panic bars or opening inward.
Locked and obstructed exit doors.
Fire-escapes which are not erected according to accepted standards.
Steep, narrow, and dark stairways with many turns and obstructed landings.
Narrow and obstructed halls.
Absence of guard-rails on stairways.
Loose, worn-out and improperly spaced stairway treads.
Improperly designated exit doors.
Improperly illuminated passageways.

Corrective Safety Measures

Too often public building disasters are caused by hazards arising from carelessness and indifference. One of the fundamental principles of fire prevention is cleanliness, yet in many instances serious fires have started or spread because of accumulations of rubbish, scrap paper, and other combustible material in basements, attics and other out-of-the-way places. A school fire in which 21 lives sequences which may arise from such conditions.

Fires seldom start in clean places and it is obvious that strict orders should be issued to janitors and cleaners of public buildings that all combustible waste material be collected and removed daily. If scrap paper is baled, it is advisable that the bales be stored outside the main building. Periodic inspections by qualified men will do much to eliminate easily recognized hazards. In one southern city the fire prevention committee of the local association of commerce has introduced a system whereby weekly inspections of schools are made by pupils of the upper grades.

If fires do start they may be localized by providing the following:

Standard inclosed stairways and elevator shafts to cut off each floor.
Adequate fire-stopping at all stud partitions, and furring at all floor and ceiling lines.
Automatic sprinkler systems generally throughout public institutions of more than two stories in height constructed of non-fire-resistive materials and in all danger points in buildings of fire-resistive construction, such as kitchens, laundries, trunk rooms, X-ray film storage rooms, basements and attics of hospitals, and in basements around heating apparatus in schools and churches.
Fire-walls with standard fire-doors to cut off large horizontal floor areas.
Fire-curtains in proscenium walls of theater and auditorium stages.
Ventilators of incombustible construction and protected so sparks and brands cannot fall into the building.
Fire-resistive bins, pits, vaults, and rooms for storage of volatile, inflammable and otherwise dangerous materials.

Protective Facilities

It is of primary importance that an ample water-supply be provided in the vicinity of public buildings. Unless a large quantity of water is available, the fire department may be unable to control a fire which has gained some headway. The fire prevention committee of a chamber of commerce in a middle western city recently made a test to determine the adequacy of the public water-supply near a large school and found that very little water could be obtained. The City Council immediately ordered the installation of a large main leading directly to the school.

Many fires in public buildings can be controlled in their incipient stage before the arrival of the fire department if private pro-

mary of the various types of extinguishing apparatus which may be found useful follows:

Automatic Sprinklers.—The installation of automatic sprinklers is an effective safeguard for public institutions. Their advantage lies in the fact that heat from a fire causes a spray of water to be released directly over the blaze, thus quenching the fire before it develops into serious proportions. An automatic sprinkler system may be installed so that an alarm of fire is transmitted to fire department headquarters simultaneously with the operation of the sprinklers. Based upon past experience, the possibility of loss of life is remote in buildings equipped with sprinklers. The records of the National Fire Protection Association indicate their efficiency in extinguishing or checking fires to be nearly 96 per cent.

It is particularly feasible to provide sprinklers throughout all buildings or rooms used for industrial work, throughout all attics, lofts, basements, and stairways of combustible construction, in all kitchens, store closets, broom closets, and the tops of chutes or dumb-waiters. They are advisable in all day rooms, halls and corridors of hospitals other than those for persons suffering from mental diseases. In the latter institutions there is a possibility that sprinkler heads might be broken or garments might be attached to exposed pipes by persons with homicidal intent.

Stand-Pipes and Hose.—Inside hose protection is advantageous in fire extinguishment in that it affords a direct contact against the blaze. For a stand-pipe system to function most efficiently, it is important that the hose be kept connected to the stand-pipe, the normal water pressure be sufficient to reach all parts of the building, the hose examined regularly and defective lengths and nozzles replaced, and the hose hung properly on brackets or reels. When a fire has gained such headway that the use of hose is necessary, first consideration should be given to the removal of occupants. Fighting the fire is then of secondary consideration.

First Aid Appliances.—Various types of hand extinguishers are effective in putting out fires in an incipient stage. Soda and acid extinguishers are of value in fighting ordinary blazes. For electrical and small gasoline or oil fires, carbon tetrachloride extinguishers are suggested. Extinguishers of the foam type are well adapted for oil fires.

Measures to prevent freezing should be employed when soda-acid or foam extinguishers are exposed to low temperatures. Extinguishers should be placed in conspicuous locations and kept free from all obstructions. In no case should they be hung more than five feet from the floor. In institutions where women and children are likely to use them, it is better that they be hung 3 feet from the floor and extinguishers of 1½ gallons capacity be installed, because larger ones would be too heavy for such persons to handle.

Sand pails containing clean, dry sand are recommended where there is danger of oil or electrical fires. Scoops may be attached to facilitate spreading of sand. If possible to avoid it, sand should not be used upon motors or machinery, because of possible injury to bearings. Extinguishers adapted to electrical and oil fires should be accessible for all machines and motors.

Employees and attendants should be thoroughly drilled in the use of these appliances.

ACKNOWLEDGMENT.—From Fire Prevention Bulletin No. 18, released June, 1925, by the Insurance Department of the Chamber of Commerce of the United States, Washington, D. C. The bulletin, a copy of which can be secured by any reader of THE AMERICAN CITY on application, contains, in addition to the sections above quoted, an outline of methods which may be adopted in public buildings to prevent loss of life in case of fire. The headings in this section include: Fire Alarms, Egress Facilities, Fire Drills, Fire Brigades, and Blankets. There is also a discussion of the special problems of safety in schools, hospitals and asylums, and churches.

An Experiment in the Surface Treatment of Brick Pavements

DURING 1924 the Street Department of Rockford, Ill., under the direction of B. C. Harvey, Public Engineer, experimented with resurfacing or seal-coating old vitrified brick pavement. The old pavement was thoroughly swept and also thoroughly flushed. After the pavement had become dry, 90 penetration asphalt was applied using approximately 0.57 gallons per square yard. Coarse or torpedo sand was used as a covering, about 10.9 pounds to the square yard. The asphalt was applied with a compressed-air distributor using about 15 pounds pressure. The experimental work was carried out during the middle part of August. Thus far this method seems very successful. However, its behavior under the extreme heat of the summer of 1925 will be watched with interest. The cost of the work was as follows:

Miles of brick streets resurfaced, 0,539.	
35½ hours' labor for spreading sand	$ 29.35
49 yds. of sand delivered to job at $2.00	98.00
Asphalt—7,725 gals. of 90 penetration asphalt at 11.5c per gal	888.38
Total cost	$1,015.73

Number of square yards, 13,513.
Cost per square yard, $0.0751.

Community Trust Idea Spreading

FIFTY-FIVE community trusts or foundations are in operation throughout the United States, and twenty-one are in process of formation, it is brought out in a survey just issued by the Committee on Community Trusts of the Trust Company Division, American Bankers Association, with headquarters in New York.

"Thirty-nine trusts have received gifts in cash, under wills, or through living trusts, in seven cases the amount being reported as in excess of $1,000,000," the Committee says. "Eighteen trusts are distributing incomes, and in twenty-two cities committees on distribution have been appointed. In addition, there are twelve trusts with gifts undesignated under wills and twenty-six trusts with designated gifts."

Discussing the community trust idea, Frank J. Parsons, Chairman of the Committee, says: "It has been stated that this movement is a plan to substitute contemporary wisdom for forethought in charities. It has seemed the part of wisdom to lay down as an essential policy the dictum that no elaborate machinery shall be built up, but that as far as possible existing agencies shall be utilized, and temporary groups formed for the putting into effect of specific programs. The question is often asked: Should we concentrate upon the undesignated gift, or feature the designated gift? As a practical matter, both plans will have to be followed for some time to come. There would seem to be no question but that the greatest good to the community will eventually grow out of the undesignated gift."

An outline of recent activities of community trusts prepared by the committee mentions the Boston Permanent Charity Fund, which is disbursing the largest income and has made appropriations to 160 charitable organizations. The Buffalo Foundation is making local studies of child-caring agencies. The Chicago Community Trust is making criminal and social welfare surveys and investigating care of handicapped ex-service men. The Cleveland Foundation is conducting a survey of higher education, the Detroit Community Trust is disbursing the James Couzens fund for the physically handicapped, the Indianapolis Foundation is maintaining a nurse for crppled chldren and a free employment bureau and has donated to the Orthopedic Hospital, and the Milwaukee Foundation is assisting in providing hospital facilities for non-paying patients. The New York Community Trust is maintaining seventeen settlement nurses, is making certain public school prize awards and cooperating in an art exhibit.

A Critical Study of Municipal Markets

IN common with the great majority of the larger cities of this country, Cleveland, Ohio, has for a number of years operated market-houses. This has not involved the actual selling of food products by the city, but only the furnishing of buildings and equipment for the use of private vendors. Believing that sufficient time has elapsed since the opening of these markets in which to develop standards and principles of administration, the Municipal Research Bureau of Cleveland has made an impartial study of the results of market operation by the city and has published in mimeographed form "A Report on the Operation of the Municipal Markets of the City of Cleveland."

That municipal markets should be operated on a self-supporting basis and market rentals fixed to accomplish this result is one of the principal recommendations of the Bureau based on its findings. These enterprises should pay all costs of operation and maintenance, including the cost of services received from other branches of the city government; they should provide for the depreciation of the buildings and equipment on a basis deemed conservative for such enterprises when privately operated; and they should meet the interest charges on their bonds and make adequate allowance for sinking fund requirements. After meeting these requirements it is not believed that any effort should be made to make markets a source of financial profit to the city; on the other hand, they should not be a source of financial loss. Debt retirement and all factors of cost included, the municipal markets of Cleveland incurred a total deficit of $262,578.73 in the six years 1918-1923, the Central Market being the only self-supporting unit in the system.

The report emphasizes the fact that a market is a utility, not a public charity. It exists in order that the people may be able to purchase wholesome food at the lowest price which competition can produce when retail costs are reduced to the minimum. It does not exist, however, to subsidize the food industry of any particular group of food dealers or purchasers. Markets are a legitimate form of public utility enterprise, but as such they should be financially self-supporting, and if, when operated on this basis, they cannot serve the buying public sufficiently to their advantage to hold their trade, then it is doubtful whether municipal markets should be maintained under ordinary circumstances.

Another Advantage of Traffic Signal Lights

POLICE officials welcome traffic signal lights in Boston because they believe that it may prevent serious injury to the arms of traffic officers. It has been noticed that a number of officers who have been on duty for several years complain that the incessant waving of arms injures the arm sockets at the shoulder. It is feared that eventually it may permanently incapacitate some of them.

With traffic signal lights at important intersections, most of the vigorous arm waving of officers is eliminated. Not only would it prevent any permanent injury to officers, but also would relieve them of the duty of giving signals and permit them to pay attention to other duties at these intersections, such as the control of pedestrians, etc.

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Elimination of Odors from Garbage Disposal Works

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A NUMBER of factors influence the general problem of the elimination of odors from garbage disposal works, one of which is the environment. In some locations some odors apparently are not objectionable. In other locations, the same or less intense odors might cause a nuisance. In recognition of this fact, the zoning map of Kansas City, Mo., indicates areas where odor-producing industries may be located.

Another factor is the cost of operation. Both construction and operating costs may be increased as odors are eliminated. If disposal is by reduction, rates of drier operation may have to be curtailed and processes adopted for odor elimination which do not produce additional revenue but which add to the cost of disposal. If it is done by incineration, additional fuel, larger capacities, and sturdier construction may be required.

Other factors relate to the many phases of garbage disposal as a municipal enterprise, including group habits and view-points, the efficiency of the operating staff, the financial resources and budget allowances, competitive conditions in the field of garbage plant installation, patent limitations, etc. All these factors are closely interwoven. Local considerations are often justly important and cannot be entirely discarded. A helpful perspective may be secured by describing a few actual conditions.

In Rochester, N. Y., a garbage reduction plant of the most approved design as regards odor elimination is operated in a commercial and semi-industrial district near the center of the city. A similar plant was built on Staten Island, New York, in relatively open country, but not far from residential districts. The protests against this plant were sufficiently vigorous practically to force its abandonment shortly after it was built. The city of New York, however, operates an incinerator in a commercial district only a few blocks from residence and business sections. In two or three other cities, garbage reduction works are in such isolated locations that apparently reduction with less odor control and lower operating costs is permissible. Thus, from a practical standpoint, the attitude of the community, the relative economies of near-by or distant location, and the over-all costs of disposal by various processes must be considered and carefully balanced.

A Hazard to Be Seriously Considered

The disposal of garbage is an operation in which an odor hazard must be fairly recognized. Unless garbage disposal works are designed, built, and operated with care, odors may result. In fact, with some methods of disposal, odors are likely to result unless the design and operation are good. In this regard, garbage disposal is somewhat akin to the odor-producing industries, such as tanneries, packing-houses, glue works, oil refineries, rendering plants, etc. Measures for odor elimination thus become pertinent.

Status of Odor Elimination

Relatively little progress in the development of methods for odor elimination can be recorded with tangible results expressed in definite terms. Inside feeding has been developed at hog farms, but capacities and designs are not generally understood and applied; and too little attention has been paid to the sanitary disposal of the unconsumed garbage and the hog manure. Fume-consuming grates have been proposed for incinerators, and the danger of low temperatures has been commonly recognized, but many designs fail to consider peak conditions. At reduction works, odorous gases have been washed with water and cholorinated, with a reduction of odors, but methods of applying the water and chlorine to secure the best efficiencies need further development.

Fundamental Considerations

The problem of eliminating odors from garbage disposal works should not be entirely confined to methods of elimination after the odors have been produced. It is a fundamental consideration that odors which are difficult and

costly to eliminate should be prevented or reduced as much as possible. The old adage as to the value of prevention before cure is true in this case. However, both prevention and cure should be studied and a well-balanced procedure developed with due regard to efficiency and cost.

There appears to be no common scale for determining permissible odor, and therefore the location and environment of a garbage plant may be considered in the general scheme for odor elimination, although they affect the nuisance resulting from the odor rather than the odor itself. For instance, if it should be necessary in a town to burn garbage, night soil, screenings, or other such refuse materials with an additional fuel, it may be said that the elimination of odors bears a major relationship to the temperature of combustion and, therefore, to the quantity and cost of additional fuel. In this case, is it better to locate the plant far afield, involving an additional haulage cost, but a lower fuel cost, permissible through a somewhat lower temperature standard?

Comments on Odors

Garbage odors should be characterized or classified so as best to promote and facilitate a study of their elimination, as follows:

a. *Garbage odors as related to the food materials* contained, such as cinnamon, coffee, lemon, burnt meat, and many others. Such odors are characteristic of fresh garbage and might be termed the "fresh garbage" odors. Their predominance is relatively brief, depending on the condition of the garbage after its house treatment, the frequency of collection, and similar factors.

b. *The odors of decomposition.*—In warm weather, for instance, moist garbage decomposes quite readily, and produces odors which are more or less of a nuisance, depending on the character of decomposition. Garbage which is wrapped and drained in the kitchen or mixed with ashes decomposes more slowly than otherwise. Odors from decomposing garbage may come from dirty collection wagons and disposal works.

c. *The process odors.*—This expression is here used to include those odors which result from the various methods of garbage disposal and at times are more or less characteristic of them. Such odors are the "pig-pen" odor, the odor of incomplete combustion, the odor of drier gases, etc. Among these odors, some may be classed as pleasant and others as offensive. Some will be intermittent and others more or less continuous; and some may be seasonal. The odors of decomposition are, perhaps, likely to be more offensive, but less widely distributed than those from gases discharged from a chimney top.

Sources of Odors in Garbage Works

The sources and causes of odors in garbage works may be related to the several parts of the works as follows:

a. *The house treatment.*—Odors may come from accumulations of garbage in the can or house receptacle and from accumulated piles of garbage spilled from the can. In some apartment houses, the garbage is spouted to the ground, and these spouts may become foul.

b. *The collection.*—If the collection wagons are not cleaned, or are difficult to clean, they may become quite odorous. Leaky and overloaded wagons may spread odor-producing material along the route. A proper covering of collection units is desirable and may be important.

c. *The transportation.*—In cases of long haul, the garbage may be transported from a transfer station to the disposal works in scows, freight cars, or large trucks. Poorly designed and maintained transfer stations with inadequate facilities for washing are likely to produce odors. Such conditions may be aggravated if the garbage is not removed from the transfer station frequently.

d. *The final disposal.*—Garbage disposal works may cause odors through design and construction in the first place, and through neglectful operation in the second place. Such factors as the capacity and general arrangements of the plant are important. To secure relative freedom from odors, these several sources should be appreciated and operations conducted to prevent odors, as described more fully subsequently.

Effect of House Treatment

Local odors may result from poor house treatment, and odors may be spread along collection routes if the interval between collections is too long, especially in warm weather. If the house receptacles are not cans with good covers, but are baskets, boxes, or barrels, they may leak and foul the ground on which they stand, or they may overflow, if they are too small. Local odors may result. A good method is to have the garbage drained and wrapped before it is placed in the can, but this method is not generally applicable to disposal by reduction or hog feeding. It is practiced in Minneapolis, Minn., Milwaukee, Wis., Trenton, N. J., and elsewhere, and it facilitates incineration. In Madison, Wis., the garbage is wrapped by the housekeeper and then unwrapped at the

hog farm before feeding, at a cost estimated at $2,500 per year. This, however, may result in a fresher garbage at the hog farm.

Effect of Collection

Unclean garbage wagons will carry odors along their route. Such odors are noticeable 100 feet or more from the wagons. They can be eliminated by the selection of a type of wagon easily cleaned, with a good cover, and by washing the wagon at regular and sufficiently frequent intervals. A good type of cover is of canvas arched over the top of the wagon and arranged in sections which can be thrown back during filling.

The European practice is to wash the wagons every day, and this practice is growing in the United States, particularly during the summer months. Washing the wagons on alternate days will materially reduce odors, but will not eliminate them. With only two washings a week, odors are likely to develop. At Milwaukee, the estimated cost at pre-war prices of having a man scrub wagons with water and a broom was about 4 or 5 cents per wagon.

Odors in the collection wagons and in disposal works will be reduced if the garbage is collected at sufficiently frequent intervals. A common practice in this country is to collect once a week in winter and twice a week in summer, but this is hardly sufficient, as a collection every other day in summer is often desirable. In some cities, especially in England and Europe, garbage is collected daily at least from the business districts. This is a good practice if the garbage is to be fed to hogs. Additional collections add materially to the cost, but they are often justified by the better service to housekeepers. If a collection unit can visit 250 houses in a working day, each unit will service 750 houses with two collections per week, and with less garbage per collection probably somewhat more than 500 houses with three collections per week. Thus, more units will be required to make the more frequent collections, entailing an increased cost of less than 50 per cent during the period of more frequent collections.

The collection of garbage, ashes, and rubbish mixed is practiced abroad and to some extent in this country. From the standpoint of odor elimination it is a good practice, but it limits disposal to mixed incineration except where sanitary fill may be possible. If dumps for ash disposal are relatively easy of access, mixed collection is likely to cost more than separate collection, because the former requires a more frequent collection of ashes than householders ordinarily require.

Effect of Disposal

Elimination of odors from garbage disposal works centers chiefly about the disposal plants proper. The sources of such odors may be stated as follows:

a. *Odors from raw garbage and its storage and handling about the plant.*—If the plant capacities are such that garbage must be stored at the plant for several days during peak seasons, odors will result. The age of the garbage as delivered to the plant also affects the odor situation. Lime, creosote, and other cleansing and deodorizing substances may be used to advantage. Provision should also be made for cleaning and washing the plant.

b. *Odors may come from the processes.*—Thus, in hog farms, an incomplete disposal of hog manure and unconsumed garbage may cause serious odor troubles. At incinerating plants, incomplete combustion may permit odorous gases to escape from the chimney top. In the reduction process, odors may come from the vapors escaping from open grease-skimming tanks, from hot materials when exposed, and from leaks about piping and tanks. Odors may also come from the digester vent gases and from the dried gases.

c. *Some odors may come from the products of disposal,* as, for instance, half-burned garbage from incinerators delivered to ash dumps; or the accumulation of tankage, tailings, and sewage at a reduction plant.

The extent of odors from garbage disposal works is influenced, more than is realized, by details of design and construction. In reduction plant A, for instance, the floors may be of concrete, the piping may be easily kept tight, the capacity may be sufficient so that no garbage is held in storage, there may be sufficient driers so that scorching and burning of the garbage is negligible, and the plant as a whole may be kept clean and in good repair. Contrast such a situation with that of reduction plant B, where floors are rough and uneven, where in the summer heavy deliveries of garbage may be stored at the plant for several days, where inconvenient arrangement renders pipe maintenance difficult, where driers are forced to operate at high temperatures, and where slovenliness prevails. The elimination of residual odors is likely to be much more difficult at plant B than at plant A.

Incineration of Garbage

Odors from incinerating plants probably arise more often from the storage about the plant and from incomplete combustion. There are two general types of incinerators which embrace the various designs—the "outside stor-

age" and the "inside storage" types.

Outside storage incinerators are a development of the mixed-refuse incinerators first studied in detail in this country by J. T. Fetherston, in connection with the installation of two plants on Staten Island, New York, in 1908 and 1913. A considerable volume of technical information is available relating to the operation of this type of plant when burning a mixture of garbage, ashes, and rubbish, and also, but to a less extent, when burning garbage and rubbish only. Rates of burning per square foot of grate area, draft requirements, flue areas, and heat balances are quite well settled. Thus, odors from incomplete combustion can be generally avoided. The outside storage of the garbage makes careful design and operation necessary if odors from this source are to be avoided.

In plants of the inside storage type, a large part of the garbage is dumped into the furnace from the collection units as delivered. Outside storage at such a plant is thus largely eliminated. However, steady, uniform combustion is more difficult, and lower rates of burning appear to be necessary. In this type of plant, safe maximum loadings have not been so definitely fixed for continuous complete combustion for the various designs.

All incinerators should have ample combustion and dust-settling chambers. Lack of such chambers increases the odor hazard and allows dust and sometimes paper to be carried up the stack. The combustion chambers at Milwaukee have capacities equivalent to 15.4 cubic feet per ton of mixed refuse furnace capacity per 24 hours.

Satisfactory incineration over a number of years calls for durable construction with properly designed furnace structures to stand the relatively hard service. With leaky furnace fronts, cracked brickwork, and inadequate draft control, cold air enters the furnaces and lowers the effective temperature of combustion.

Reduction of Garbage

The development of garbage reduction in this country has been influenced by the odor problem as well as by costs of operation and market conditions. Several groups of reduction processes have resulted, among which may be mentioned the following:

a. The cooking group in which the garbage is first cooked by steam in digesters and then generally pressed and percolated for the quite complete recovery of grease, the waste liquor being evaporated and added to the tankage. In some plants, the process is limited by omitting gasoline extraction of grease or the evaporation of waste liquids, or both.

b. The cooking group in which the garbage is first dried and then percolated for grease recovery, with a further processing of the residual solids for tankage. In this process there is no cooking, and the digester vent gases are eliminated.

c. The Cobwell group, in which the entire process is accomplished in closed tanks termed reducers. In the reducers the garbage is treated with solvent, heated, dewatered, degreased, and dried. The process thus offers a minimum of odor hazard. Recently, the garbage has first been dried to increase the general plant capacities and to reduce net operating costs.

The so-called Morrison process has been adopted at Indianapolis, Ind., and Dayton, Ohio, for the preparation of a stock and poultry food and other products from garbage. It is a cooking process, using a steam-jacketed digester in which cooking, pressing, and drying are done.

At garbage reduction works several relatively well-defined sources of odors have been noted. First are the garbage odors arising from the delivery and storage of the garbage. Second are the digester odors which are commonly described as having a caramel or burnt-coffee odor. The odor of the digester vent gases is apparent at times and is different from the digester odors. Third are the drier odors resulting from the escaping drier gases. These generally have a sweet burnt-vegetable odor with occasional whiffs which are acrid and irritating. By condensation, by washing with water, by heating to a high temperature, by treating with chlorine gas, and by removal of dust, these various odors have at times been largely eliminated.

A comparative analysis of these various reduction processes as they affect odors involves so many local factors that general typical operating schedules are not likely to be helpful. Obviously, a completely developed plant of the cooking type requires more different, separate operations than one of the drying type. In the former method, the cooked garbage is usually pressed to a cake containing from 55 to 60 per cent of moisture of fairly uniform character, and this cake is passed through driers. Under the latter or drying method, green garbage with an average moisture content of about 75 per cent is the material dried. There is, however, a wide range of moisture content in the different particles. Although one process eliminates cooking and pressing, the other calls for heavier work by the driers. Thus,

the economies of operation and the likely success of measures for odor elimination are interrelated.

Factors influencing the costs of disposal are fixed charges which reflect the first cost, labor costs, maintenance costs, net sale prices of grease and tankage after deducting freight, and the cost of odor elimination. This last factor includes the often considerable increase in first cost due to the type of driers, condensers, and other equipment permissible from an odor standpoint, as well as the cost of odor-eliminating devices.

Digester Operation

The cooking of garbage in digesters generates gases and vapors, the treatment of which is important in the control of odors. There are a number of different digesters on the market. Some constitute a vertical, cylindrical steel tank, generally lined with vitrifed brick, with a false bottom over a drain. In these the garbage is cooked with live steam. The period of cooking varies from season to season with the condition of the garbage and, at times, with its age and state of decomposition. A frequent period is 8 to 10 hours. During cooking the excess steam is vented through small pipes to condensers. Some digesters contain arms or paddles which are rotated to stir the garbage during cooking. Water or waste liquors are added to promote the cooking. Other digesters are steam-jacketed and the heat from the jackets cooks the garbage and may be used to evaporate the liquid contents. In other processes some of the liquids are pressed out by steam, and in some the pressed material is partly dried by the heat of the steam in the jacket.

The gases and vapors from the digesters usually pass to condensers, where the steam in the vent gases is condensed and a large part of the gases is absorbed by the water. In some plants, the insoluble gases have been trapped and passed into the boiler furnaces, but it has been found that heating these gases to 2000 degrees Fahrenheit does not eliminate them, but makes them more irritating by changing the sulfur compounds to sulfur dioxide. When these gases are first condensed and then burned and discharged at the top of the boiler stack, it is probable that air dilution and dispersion is helpful in reducing the odor trouble. Based on studies by Osborne, Crowe, and Klein, it was concluded that by first heating the insoluble digester vent gases to about 1200 degrees Fahrenheit and then passing them through water, all odors were eliminated. The extent and character of these odors have not been fully related to the condition of the green garbage and to the schedule of operating the digesters.

Drier Operation

As regards odors, the type and design of drier and the rate of firing and of feeding garbage or press cake are important. With direct heat driers in which the gases and flames of the fire pass directly into the drier, charring or burning of the garbage may result from contact between the intensely hot gases and the partly dried material. This is more likely to occur if the feeding of material into the drier is not uniform and if its distribution in traveling through the drier is uneven. Charring is also more likely to occur if there is a poor adjustment of the fire to the quantity of incoming material and to variations in its moisture content from time to time and throughout the mass. A commercial rating for a direct heat drier, 5½ feet in diameter by 40 feet long, is the evaporation of 4,000 pounds of water per hour.

As odors such as acrolein (from burned grease) result from burning or charring the garbage, close control of the drier operation is needed. This requires relatively complete combustion in the furnace so that only hot gases reach the drier. The temperature can be controlled to some extent on the way to the drier by air inlets, brick regenerators, and like factors.

With indirect heat driers, the chance for burning the garbage by direct contact with the flames is reduced, as the flames and hot gases from the furnace pass around the outside of the drier shell with the material on the inside. If, however, bits of grease and other substances stick to the hot shell, they will burn. In some driers, the hot gases pass first around the outside of the drier and then through the inside with the material to be dried. Such driers were recommended for the proposed plant at Cleveland, Ohio, and were rated at an evaporation equivalent to about 8.2 pounds of water per pound of coal, which compares favorably with a direct heat drier.

With steam driers, the moisture is driven off by contact of the material with the shell of the drier (or steam tubes through the drier) heated by live steam. Thus, the chances for burning are practically eliminated unless the dry material ignites. The rate of evaporation, however, is low, as steam driers require about twice as much fuel per pound of water evaporated. Steam driers are therefore less often used in garbage reduction plants. Under some circumstances, however, it may be preferable to operate at a slower drying rate and a higher

cost in order to reduce the odor hazard. In some plants the garbage or press cake is first dried to about 30 per cent moisture in direct head driers and then finished in steam driers.

Treatment of Drier Gases

Even with the best of design and operation, it is probable that some odors will result from the driers, and these must be eliminated by special treatments. The most common method is by treatment with water, commonly termed scrubbing. The gases are passed through a masonry structure in which sprays or curtains of water are maintained. A large water surface should be exposed to the gases passing through the scrubber. The sprays of water should condense the steam and absorb the soluble gases and carry both to the sewer. If the velocity of the gases through the scrubber and into the stack is too great, the particles of moisture and some dust will escape at the chimney top, and if insufficient water is used, some of the steam and soluble substances will escape to the atmosphere. Thus, the scrubber operation may not be entirely efficient. In scrubber design, the items of temperature, velocity, time, quantity, exposed surface of water, and the general arrangement are pertinent and should be related to the type and rate of operation of the drier.

Dust is probably best removed by sedimentation or centrifuging prior to scrubbing. In some cases, in addition to scrubbing, the drier gases are heated by passing them through the hot gases of a coal, oil, or gas furnace. As a result of the tests at Barren Island, it was stated that "the odor of drier gas can be completely eliminated by heating to a temperature of 1850 degrees Fahrenheit." Here, again, the cost of heating is pertinent and should be related to the design and operation of the drier and scrubber.

Recently, chlorine gas has been used for the elimination of odors from drier gases under the Henderson-Haggard patents. At New Bedford, Mass., it is estimated that about one pound of chlorine was used per 1,000,000 cubic feet of drier gases at 100 degrees Fahrenheit. The chlorine was introduced at the entrance to a small scrubber.

Experience with Plant Locations

The selection of sites for garbage disposal works has often been an arduous task, which is apparently more difficult in some cities than in others. Among the more important factors are the following:

a. *The occupancy and use of adjacent areas.*—Unoccupied and unused areas do not suffer immediate damage from odor-producing industries. Residential districts where people spend their leisure hours and where children

DATA RELATING TO THE LOCATION OF GARBAGE PLANTS, NOVEMBER, 1924

City	Population, 1920	Miles from Business Center	Character of Locality
Akron, Ohio*	208,435	2.0	Near main highway
Boston, Mass	748,060	4.0	Island, Boston Harbor
Bridgeport, Conn	143,555	3.0	.....
Buffalo, N. Y.*	506,775	6.5	.....
Chicago, Ill	2,701,705	4.5	Stockyards
Cincinnati, Ohio	401,247	6.0	Scattered dwellings
Cleveland, Ohio	796,841	8.0	Sparsely settled
Columbus, Ohio	237,031	4.0	Sewage disposal plant in undeveloped district
Dayton, Ohio	152,559	8.0	Open country
Detroit, Mich	993,678	20.0	Isolated near main highway
Dubuque, Iowa	39,141	4.0	Isolated
Indianapolis, Ind	314,194	3.0	Open country near main highway
Los Angeles, Calif.*	576,673	2.5	Warehouses
Michigan City, Ind	19,457	4.0	Near main highway
New Bedford, Mass.*	121,217	2.5	Sparsely settled
New York, N. Y.*	5,620,048	12.0	Isolated
Philadelphia, Pa	1,823,779	2.5	Industrial
Pittsburgh, Pa	588,343	22.0	Isolated
Rochester, N. Y	295,750	0.75	Commercial and industrial
Schenectady, N. Y	88,723	1.2	Mixed
Syracuse, N. Y	171,717	1.6	Sewage disposal plant
Toledo, Ohio	243,164	3.5	Stockyards
Washington, D. C	437,571	35.0	Isolated

*Discontinued.

DATA RELATING TO THE LOCATION OF GARBAGE HOG FARMS, NOVEMBER, 1924

City	Population 1920	Miles from Business Center	Character of Locality
Akron, Ohio	208,435	7.0	Farms
Denver, Colo	256,491	7.0	Near city limits
Grand Rapids, Mich	137,634	35.0	Farms
Lansing, Mich	57,327	3.5	Farms
Los Angeles, Calif	576,673	50.0	Open country
Madison, Wis	38,378	3.4	Near sewage plant in undeveloped district
Newark, N. J	414,524	2.0	Commercial and industrial
Salt Lake City, Utah	118,110	....	.....
Utica, N. Y	94,156	5.0	Farms
Worcester, Mass	179,754	3.0	Developing residential

DATA RELATING TO THE LOCATION OF INCINERATORS, NOVEMBER, 1924

City	Population 1920	Refuse Matter Handled	No. of Plants	Miles from Business Center	Character of Locality
Atlanta, Ga.	200,616	G. R. A.	1	0.75	Railroad yards
Charleston, W. Va.	39,608	G. R.	1	0.75	Semi-residential and commercial
Dallas, Tex.	158,976	G. R.	4	1.5	Factory and residences
Danville, Ill.	33,776	G.	1	....	Negro houses of good character within 500 ft
Elgin, Ill.	27,454	G.	1	0.5	Residences and soap company
Fort Worth, Tex.	106,482	G. R.	4	....	.....
Houston, Tex.	138,276	G. R.	3	1.5	.....
Miami, Fla.	29,571	G. R.	3	3.0	Residences, but none within 500 feet
Milwaukee, Wis.	457,147	.....	1	1.25	Entrance to harbor
Minneapolis, Minn.	380,582	G.	1	4.0	In open country near city workhouse
New Orleans, La.	387,219	.....	2	2.2	.....
Oak Park, Ill.	38,858	G.	1	0.0	Schools, city hall, residences
Paterson, N. J.	135,875	.....	....	....	.....
Philadelphia, Pa.	1,823,779	.....	....	2.5	.....
St. Louis, Mo.	772,897	.....	....	1.2	Commercial
San Francisco, Calif.	506,676	G. R.	1	....	.....
Savannah, Ga.*	83,252	.....	....	....	.....
Scranton, Pa.	137,783	.....	1	0.75	Rendering plant and factories
Springfield, Ill.*	59,182	.....	....	....	Small residences
Trenton, N. J.	119,289	G. R.	1	....	Center of city

Notes: G—Garbage; R—Rubbish; A—Ashes. *Discontinued.

are growing up are probably the least desirable districts in which to locate garbage plants.

b. *The type of disposal plant and the character of its design and construction.*—The details of the plant may properly be related to its location with due regard to future property developments and plant additions.

c. *The distance to which odors are likely to travel.*—Odors from digesters and driers in garbage reduction works have been detected at distances of several miles.

A record of plant locations showing the distance from the city hall to the disposal works is given in the accompanying table. These distances range from a few hundred feet to 50 miles. Some engineers are of the opinion that plants should be located far afield where odor elimination is not required. Others feel that garbage should be disposed of in the community which produces it and in such a manner as to eliminate odors.

General Summary

In odor elimination, attention to detail is the secret of success. Thus, plant up-keep and cleanliness are of great importance. It seems almost axiomatic—and certainly it is common sense—that a clean garbage plant tends to eliminate odors, as compared with a dirty one; and yet the condition of garbage disposal plants covers a wide range from very dirty to clean. If plant operators would realize that clean should mean clean and that there should be no compromise with dirt, much odor trouble would be eliminated. These points being in mind, the following considerations will be helpful in odor elimination:

a. There should, without doubt, be a good general plan for handling garbage, covering the house treatment, the collection, and the final disposal. This will result in a fresher garbage at the disposal works.

b. As part of the general plan, good house treatment should be developed and the collection frequency oriented to the method of disposal and the location of the disposal plant as well as to the convenience of the householders.

c. Collection wagons should be regularly cleaned to eliminate odors and to reduce the chances of receiving decomposed garbage at the plant.

d. Garbage disposal works should be built on suitable sites chosen with reference to the character of disposal works and the over-all costs of garbage collection and disposal.

e. Of particular importance is the capacity of the garbage disposal plant. No garbage plant should be subject to serious overload when garbage collections are heavy, if odors are to be eliminated. This is a real factor, too often not given serious and definite consideration.

f. Following a good general plan, clean operation, and ample real capacity of disposal works suitably located, there should be added proper devices for the elimination of residual odors, including combustion and dust-removal chambers at incinerators, and scrubbers, condensers, burners, chlorinators, etc., at reduction works.

To secure these various measures for odor elimination properly calls for the best of technical engineering effort. To facilitate this work, many more accurate data, carefully taken and recorded, should be made available on rates and results of operation for all the various devices. With proper effort, however, a practical elimination of odors from garbage disposal works can and should be expected.

ACKNOWLEDGMENT.—From a paper read before the Sanitary Engineering Section, American Society of Civil Engineers, at New York, January 22, 1925, and published in Volume LI, No. 5, May, 1925, of *Proceedings*.

Developments in the Design and Maintenance of Bituminous Macadam Pavements

By John S. Crandell

LET us assume that the question of drainage has been settled. Our problem is to build a bituminous-bound macadam, using, if possible, local materials, and importing as little as we can. What may we use for our foundation course, and how deep shall it be?

The materials are gravel, stone, and slag. In most cases it is unwise to use gravel unless it is an old gravel road that we are going to surface with a bituminous top. Of the stones to be found in the eastern part of our country, almost any may be successfully used in the foundation. Even poor-quality sandstone is useful, if properly laid and consolidated.

We may divide stone into field stone (rounded), ledge stone, and commercial broken stone. If the rounded field stones are used, much care must be taken to make sure that they are firmly bedded, and that they will not move under traffic. By filling the voids with smaller angular pieces and rolling thoroughly, there will be little danger of an unstable base.

Stone that occurs in ledges sometimes gives considerable trouble when used by inexperienced road builders. Such stone must be laid on edge, and no points should protrude. When the field stone or the ledge stone is used, best results will be obtained when the larger sizes are used in the center of the road, with the smaller stones tapering off to the edges. This does not mean that the depth of foundation is to be less at the edges than at the center. In fact, it may sometimes be advisable to increase the depth at the sides to prevent heavy trucks from breaking down the edges of the pavement. This, however, is not customary, nor often necessary.

In using either of the two varieties of stone mentioned, it will be necessary to lay the stones by hand, to some extent, thus approximating, in cost of laying, the expense of a true Telford base. What is saved in stone cost is somewhat dissipated in labor costs.

Commercial quarry stone is usually far simpler to lay, and it should be spread mechanically. There are several good forms of spreaders on the market, or you can make one for yourself that will answer the purpose. Dropping stone from the tail-board of a truck and then shaping it up with a road scraper is an excellent and cheap way of handling this part of the work. I saw John Campbell, of Rockland County, N. Y., shape up a mile of stone with a road scraper after the stones had been dropped off a truck. He did the job all by himself, and in a surprisingly short time.

Slag makes a good base, but the man who tries some grades of it for the first time may be a little discouraged. It is somewhat difficult to roll because the angularities break off, leaving somewhat rounded pieces. These are liable to shove under the roller. By adding fine material during the rolling, this trouble will disappear. If no fine material is available, just keep on rolling, and the slag will roll its own. It is possible to use for the base a grade of slag that might be unsuitable for the wearing course, but do not use brittle, glassy slag, nor slag that is so soft that it powders easily.

Black base is a form that is rapidly coming to the fore. There are cycles in engineering, just as there are in women's skirts. Black base, or bituminous-bound base, was in use many years ago, and was quite satisfactory. To-day there are thousands of yards of pavements

SHAPING UP THE WEARING COURSE OF A BITUMINOUS ROAD WITH A ROAD MACHINE, IN VALLEY COTTAGE, ROCKLAND COUNTY, N. Y.

laid over black base that has been in place from thirty to fifty years. These bases have been resurfaced several times, but remain intact. I was present when the old black base on Massachusetts Avenue, Washington, D. C., was removed about five years ago. It had been laid in 1872, and it consisted of gravel, broken stone, and tar. It was from 4 to 8 inches thick, and so firmly bound together that huge chunks of it, chunks larger in area than the body of the 7-ton truck used to cart it away, were swung onto the truck by a steam shovel without breaking them in the least. The binder was coal tar, and it was interesting to see that it was still lively and could be spun into threads after nearly fifty years.

Depth of Foundation

We now come to the question of depth of foundation. This is dependent on so many factors that it is almost impossible to say what it shall be without an examination of the job. There are thousands of stretches of road that have been built with a 4-inch base and are standing up splendidly after many years of heavy traffic. There are other roads that have failed and for no other reason, perhaps, than that the depth of base was insufficient to carry present-day loads on the yielding ground. Sometimes a 10-inch foundation is really necessary. More often, suitable drainage, or a layer of cinders or sand over an undrainable soil, would reduce the foundation depth to a more reasonable figure.

But, whatever type of base is built, it is essential that it be tight, compact, unyielding, immovable, and, if possible, water-proof. This means that the rolled stone base or the slag foundation must be thoroughly well filled so that there are no voids. The filler may be stone dust, sand, pebbles, or granulated slag, or a combination of any or all of them. It must completely fill the voids, so that the completed base looks like a water-bound macadam. And this base must ride well.

Any waviness in the base is almost certain to show up later in the finished top; therefore, keep your roller man on the job, and see to it that he does his part of the work to the best of his ability, and if his ability isn't great enough, get another roller man. The smoothness of the top is dependent on the smoothness of the base.

Often there is opportunity to utilize an existing road as foundation for a new top. Then the question is: Shall the old road be scarified, or shall we use it as is? A thorough examination of the old road must be made. You will find sometimes that what passes for macadam may be only a couple of inches of broken stone with no base at all. This, of course, cannot be used. Sometimes a thick, well-built road is found, but the crown is so high that it seems out of question to resurface it without removing the crown. Yet, if you remove the crown, you may so reduce the depth at the center that the resulting pavement will always be weak. In such a case the new top may be built higher at the sides and thinner in the center, thus reducing the crown without impairing the strength of the pavement.

Do not scarify the old road unless it is absolutely necessary. The wearing course is placed over the base. The depth when finished should be from 2½ to 3 inches. The size of the stone or slag used is most important. It is too bad that at this late day we have among the states, and sometimes even between adjoining counties in the same state, no uniform method of designating stone sizes. The Bureau of Public Roads has been working on this subject, and it is to be hoped that a speedy settlement will result. If we could get quarrymen, state and county highway departments, and the Federal Government to agree, there would be less confusion among the craft.

Wearing Course

Slag, and the softer kinds of stone that are suitable for the wearing course, may and should be of larger size than the harder grades, such as trap. The softer stones break under the roller, while the harder varieties do not. Specifications usually call for stone that will pass a 2½-inch ring and be retained on a 1¼-inch ring. Between these limits it is possible to call for a stone size that suits the quality of the stone offered.

If large-sized hard stone is used, it will often be found advisable to chink the voids to some extent with ¾-inch chips before applying the tar. This prevents the binder from running away to the bottom of the course in hot weather.

Mechanical spreading of the wearing-course stone should be resorted to, to lessen costs and to insure uniform spreading. The finished depth is to be about 3 inches, and the loose stone must, of course, be somewhat deeper before rolling. Keep the roller speed down to a slow walk. Many a wearing course is pushed and shoved out of place by fast rolling.

Applying the Bituminous Binder

After the wearing course stone is rolled either sufficiently or as much as you dare roll

it without injuring it, the tar or asphalt is applied at the rate of about 1.75 gallons to the square yard. The bitumen is, of course, applied from a mechanical spreader under pressure. No one to-day would care to return to the old hand-spreading method. Why, then, is there any aversion to mechanical stone spreaders?

After the application of the bitumen, the chinking or choking course is applied. Now here let us make a departure from the general practice, and for the following reasons: In the early days of the industry, when there was a mixture of horse-drawn and motor vehicles, with a fairly slow speed for the latter, it was found that the chinking course that gave about the best results with the least expenditure of money was a ¾-inch stone chip; that is, a chip passing a 1-inch ring and retained on a ½-inch ring. This chip embedded itself well, and the traffic seemed to iron it into place if it had any tendency to get loose. To-day another condition confronts us. There are almost no horse-drawn vehicles, and the speed of passenger cars and trucks has increased materially. As a result, you will find that the ¾-inch chip is too big, and that it is liable to become dislodged under the fast-moving traffic.

For many years pea gravel has been used for the chinking course in several locations along Long Island Sound, and it has been found that pavements constructed with this small-sized material have stood up better than those built with the usual large chips. Traffic seems to be unable to whip the pebbles out of place, and an examination of numerous pavements seems to indicate that the chip or gravel passing a ⅜-inch opening and held on a ⅛-inch opening is superior to the larger material. Some of the earliest roads were built with sandy gravel for the choke, and after 15 years' constant service, they are still in excellent condition.

Any choke that is not held firmly by the tar in the first coat should be swept off the road. Why? Because it may form a mat over the wearing course that will prevent the seal coat from adhering to the stone in the wearing course, thus making the seal coat act like icing on a cake. In time, it will peel off, exposing the stone to traffic.

SWEEPING OFF EXCESS ¾-INCH STONE BY HAND ON STEPHENSON BOULEVARD, NEW ROCHELLE, N. Y.

Seal Coat

After the loose choke is removed, the seal coat is applied, usually at the rate of from ½-gallon to ⅜-gallon per square yard. It is customary, in almost all localities, to use the same material for the seal coat as for the wearing course. This is good practice, and yet it is possible to obtain better results sometimes with a seal coat of hot tar, such as is used for hot surface treatments, marketed under the trade name of "Tarvia-A."

The cover which is spread over the seal coat is a most important part of the construction. It is poor business to skimp on it. A good-quality chip, or clean pea gravel, will give the best results, making a skid-proof, wear-proof surface. If a soft, powdery stone is used, every one will regret it. It will pay you to import your cover if you have no really good material at hand.

Bituminous-bound Shoulders

Penetration shoulders are built precisely the same as penetration roads. But there is one difficulty that is encountered—it is almost impossible to properly roll the base with a three-wheel roller. This is especially true if the existing pavement is concrete, for then the roller is liable to damage the edge of the slabs.

A small tandem roller is suitable for this work, provided that you design the penetration work for the width of the tandem wheels, which is 36 inches. A pup roller is very satisfactory and will do the work of a tandem roller even though the spread is 5 feet.

Maintenance

Maintenance of any road should begin as soon as the road is built.

At a recent meeting held in Syracuse,

Howard Smith, of New York State, said that a most important part of the duty of the highway engineer was to begin maintenance operations when they appear necessary, to the trained eye of the engineer. This maintenance may seem, to the layman, to be wholly unnecessary, and therefore he raises his voice to heaven, denouncing those who built the road with his money, those who sold the materials, and any one and every one connected with the enterprise. In consequence of such vocal pyrotechnics, the engineer who knows better is deterred from taking maintenance measures when they are needed, and waits until later when the tiny defects have grown so large that even the loud-voiced taxpayer sees that something must be done. Of course, this individual again brays, this time denouncing the engineer just as roundly for not taking preventive measures, as he would have, had he taken them earlier.

Surface treatments should not be given, in most cases, until holes are patched and the road well cleaned, and the cover is ready on the job. Patching with either hot or cold material has become so common that there should be little to say about it, were it not for the fact that this very commonness has resulted in carelessness. Careful proportioning of ingredients is all too rare where cold patching materials are used. Seldom are the holes to be repaired, prepared. Often the aggregate is damp and even soaking wet, especially in springtime. Frequently the mix is dumped into the hole, untamped, and unrolled. Occasionally the bitumen is heated in a tar kettle, and usually it is heated so hot that the solvent is driven off, sometimes causing a fire, and in most cases ruining its binding value. And yet, in spite of all the vicissitudes of evil fortune to which a cold patching material is subject, it gives a splendid account of itself in the long run.

Cold patch work has been expanded to the point where old pavements are being resurfaced with a cold mix. Such jobs depend for their success on the care with which the mix is made. One of the earliest pieces of work of this kind was never quite perfect because of laxness in proportioning the ingredients of the mix. No batch should be fatter or leaner than any other.

Surface treatments are so common and the methods used are so well known that little need be said. The error that is most frequently made is in applying too heavy a coat of bitumen. This is sometimes disastrous, in that a heavy mat is produced which tends to wave and bunch under traffic. This is specially true of hot surface treatments. Indeed, this is what first brought hot surface treatments into discredit. The cold treatments do not act this way, and, on the whole, they give superior results.

Cover plays a most important part in the success or failure of surface treatments. The skid-proof, long-wearing treatments are those where a tough, sizeable stone chip has been used. Such a cover is particularly well adapted to tar surface treatments, since the tar adheres well to the stone and holds it in place on the road. No surface treatment was ever successful when applied over a dirty, filthy road.

The surface-treating of concrete roads has come more and more into established practice. There are several items that must be reckoned with before such treatments may be successfully undertaken. First of all, the concrete must be put in condition to be treated. That is, the open cracks must be filled with tar binder; loose, scaly pieces of laitance or scaly concrete must be removed; corner breaks and holes must be repaired, and dirt and filth must be cleaned off. This is essential preliminary work.

There are several methods that have been successfully applied in treating concrete. These are: a prime coat with light refined tar, followed by a second or seal coat of the same material; or, a prime coat of light tar, followed by a seal coat of hot tar; or, a single treatment of hot tar; or, a coat of cut-back cold application tar, Tarvia-KP.

These several methods have all worked out well in practice. The advocates of the prime coat method believe that the light tar penetrates the concrete and gives the seal coat something to adhere to. This is on the principle of house painting where a prime coat is always applied to the new woodwork. The use of a tar cut-back, such as Tarvia-KP, serves the same purpose in one operation. Here the light oils in the cut-back penetrate the concrete, while the heavy binder remains on top and forms the mat which holds the cover. The single hot surface treatment with tar has proved to be quite satisfactory if the concrete is clean. Oil drippings from cars do not seem to adversely affect these treatments.

The amount of tar that may be applied in surface-treating concrete is not great. In the prime and seal method, a ¼-gallon prime and a ¼- to ⅓-gallon seal coat is ample. For the single hot treatment, about 0.4 gallon is right, while a ¼-gallon cut-back treatment is sufficient, usually.

In closing, let me ask for a little more con-

sideration for the construction details of bituminous macadam. When a concrete road is being built, or when a concrete base is being laid, passing traffic is not allowed to run through the fresh concrete. The road is blocked off and traffic is rigidly excluded. But when a bituminous macadam is in process of construction we find, all too often, that traffic is permitted to roam at will through the freshly spread stone, while it is being rolled, and sometimes while the bitumen is being applied. I think that the same care should be exercised in this type of construction as in any other. Just because it is an easy method of building a good road is no good reason for letting traffic ruin it during construction. Keep a good road good with careful maintenance when such maintenance is necessary.

A TARVIA PENETRATION PAVEMENT ON TELFORD BASE ON THE BOULEVARD, ROCHELLE PARK, N. Y.

ACKNOWLEDGMENT.—From a paper read before the meeting of the Association of Highway Officials of the North Atlantic States at Atlantic City, N. J.

Interesting Abstract of Street Improvement Specifications

Points Not Always Made in Street Construction Contracts

THE Specifications and Form of Contract for Street Improvement for the City of Akron, Ohio, contains a number of requirements that are of considerable interest to municipal officials. We quote the following paragraphs from the 1925 Specifications furnished us through the courtesy of E. A. Kemmler, Highway Engineer of Akron.

"23. The contractor will be required to provide and set up the necessary barricades, pedestals and other devices for detouring traffic around section of the improvement that the engineer orders closed during construction. He shall change the location of detour devices as often as necessary. The engineer will provide the cardboard signs.

"24. It is the purpose of the city to subject the residents on the street to be improved to as little inconvenience, discomfort and injury to business, as possible. The general public will be considered as well by providing safe crossings at intersections, detours made where possible and by dividing contracts embracing more than 1,000 feet in length into sections of workable size. Public service companies will be kept informed of the work being done, and ruthless destruction of their property by contractors will not be countenanced. The contractor will be charged with the cost of all repairs to city property occasioned by the unnecessary disarrangement or destruction of the same.

"Contractors who are in sympathy with the purposes outlined above, and prepared to act in accordance therewith, are invited to submit a proposal for doing the work included in this contract.

Specifications

"Conduct of Work—Section 8

"Paragraph 4. During the progress of the work, the contractor shall in a reasonable manner accommodate both the vehicular and foot traffic. Street intersections may be blocked only one-half at a time and the contractor shall lay and maintain temporary board walks, driveways, bridges and crossings such as in the opinion of the engineer are necessary to reasonably accommodate the public. Whenever the contractor is compelled to suspend work on this contract on account of winter weather, he shall provide and maintain such cinder or board walks and drives as are necessary to accommodate the public and the residents of the street until the resumption of work. The road-

way may also be cindered to such a depth and width as the engineer may designate. Payments to be made under item 106. Should the contractor fail to provide such conveniences within a reasonable time after suspension of work, the city will do the work at the contractor's expense. The contractor shall provide lights, barricades, red lanterns and watchmen necessary to protect the public and the work.

"Interference with Existing Structures and Traffic—Section 19

"The contractor shall notify in writing at least 48 hours before breaking ground, all the city departments and the public service corporations whose tracks, wires, pipes, conduits or other structures may be affected by his operations. He shall likewise notify the Chief of the Fire and Police Departments of the temporary blocking of any street. The contractor shall be responsible for the destruction or disarrangement of all property of the Akron Bureau of Water Supply and of all Public Service corporations, due to his careless operation of his equipment. The contractor shall not at any time interfere with the operation of street cars without special permission of the engineer.

"Retainer—Section 39

"The city will retain 3 per cent of the entire cost of the work done by the contractor for the above guarantee period of years from the date of the approval by the Director of Public Service of the engineer's certificate of "Total Cost," which retainer may be placed in a fund to be known as the Contractor's Retainer Fund in the depository paying the best rate of interest available, or the money may be left in the improvement fund, in which case the rate of interest shall be 4 per cent. If the contractor shall have complied with all the requirements of his contract in keeping said street in good and proper repair, then at the end of his guarantee period, upon order of the Director of Public Service, the contractor shall receive this retainer with interest; but if the contractor shall fail to make all necessary repairs, as indicated by said engineer, at any time during the above period, then the engineer shall have power to expend all or such part of the amounts so retained as the said engineer may see fit and apply the same to making the necessary repairs, and interest shall thereafter be allowed to the contractor upon the residue only of the retained percentage remaining to his credit. Should the amount retained not be sufficient to make the required repairs, the contractor shall at once make good the deficiency. At the expiration of the guarantee period, as above specified, whatever remains to the credit of the contractor, provided all repairs shall have been made satisfactory to the said engineer, shall be paid to the contractor as full settlement of any balance due on said contract, as herein provided, whereupon, and not until then, shall the contractor be released from the obligation assumed in this contract and his bondsmen discharged.

Detail Specifications

CONSTRUCTION

Grading—Item 1

"Steam shovels and other excavation machinery using soft coal as a fuel, may be used under special restrictions, satisfactory to the Director of Public Service, whereby the owners and residents are protected against undue inconvenience from smoke, injury to trees and shrubbery and to service pipes of all kinds.

"Machinery using non-smoke-producing fuel may be used on any street except as follows:

"No excavating machinery may be used on any street having either a single or double line of car track unless such machinery is suited to the conditions, so as in no way to interfere with the operation of street cars on such track. The traction company will not be permitted to divert traffic from any of its tracks except for the purpose of construction or repairs of the tracks themselves.

"All damage to property resulting from the use of excavating machinery shall be charged to the contractor.

Concrete—Items 20, 21, 22 and 23

"Slump Test.—The contractor shall provide with every mixer a conical sheet metal mold, 12 inches high, 4 inches diameter at top and 8 inches at base, provided with handles at sides. Samples of concrete shall be placed in mold and lightly tamped, whereupon the mold shall be removed immediately and the drop or "slump" in concrete measured. For concrete base for street paving, it shall be between 6 and 7 inches; for sidewalks base it may be a trifle less."

"EVERY HOME A HEALTH CENTER"

The Dayton plan of health service is based upon the idea of making of every home a health center. More and more are we getting away from the idea of the old-fashioned health center. Through instruction in child care and other phases of health needs in the home by the district nurse, the home is rapidly taking its rightful place as the center for health promotion.—From the Bulletin of the Division of Health, Department of Public Welfare, Dayton, Ohio.

Overcoming Corrosion in a Distribution System

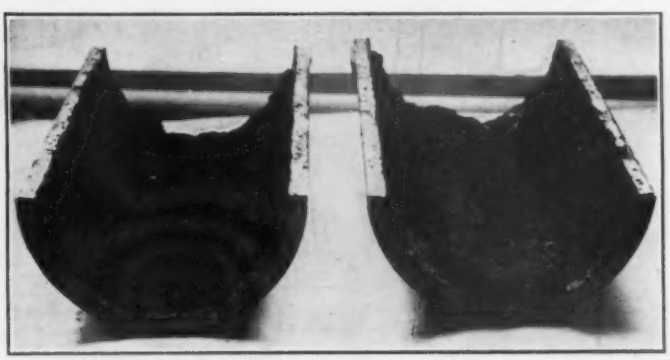
Interesting Discussion of Methods Adopted by the Water Department of Charleston, S. C.

By J. E. Gibson
Manager and Engineer, Water Department, Charleston, S. C.

CHARLESTON, S. C., is located on a peninsula formed by the Ashley and Cooper Rivers. The elevation averages about 10 feet above mean tide. Salt water extends inward from 20 to 25 miles, and the question of a water-supply has been an important one since the earliest history of the city. The city was originally incorporated in 1670. It was not, however, until 1880 that a municipal public water-supply was installed. The supply was secured from artesian wells approximately 2,000 feet deep, and the capacity when pumped with air was 2,000,000 gallons per day. This artesian water had a temperature of 98 degrees Fahrenheit and a mineral content of from 1,800 to 2,000 parts per million. It was highly prized for drinking and bathing purposes, but could not be used for cooking or laundry purposes as the soda content broke down the starch grains in the food and turned all starched white goods brown upon the application of a hot iron.

The artesian water-supply proved inadequate, and in 1898 and 1899 the city took steps to obtain a surface supply from the Edisto River, a distance of about 30 miles. The cost of the Edisto supply was prohibitive, and in 1903 a surface supply was obtained by damming Goose Creek, a tributary of the Cooper River, and allowing the impounded water to freshen. This supply was a low-alkaline, highly colored, peaty water and it was necessary to filter it to obtain a satisfactory water for domestic purposes. Very little was known about the corrosive action of these peaty waters after filtration, but as soon as the plant was started, complaints became very general on account of red-water trouble and leaking plumbing. Investigation showed that, while the filter plant was delivering a very satisfactory water the carbon dioxide content was from 35 to 40 parts per million. Upon determining this, the use of soda ash was resorted to, to reduce the carbon dioxide content and to bring up the alkalinity. It was found, however, that if the soda ash were added in advance of filtration, it required an increased dose of alum to coagulate the color. The final result was about the same. It was then decided to add the soda ash after filtration, and unless care was exercised there was a subsequent coagulation which was objectionable. Finally, it was found that the best results could be obtained by coagulation with alum, adding only sufficient alum to reduce the natural alkalinity to from 2 to 3 parts per million. This was followed by sedimentation and filtration, and after filtration the addition of sufficient soda ash or milk of lime to reduce the carbon dioxide content and to bring up the alkalinity to 5 to 8 parts per million. This treatment, however, did not give satisfactory results, as complaints of red water in the hot water boilers continued.

As the use of mechanical filters became more general, it was found, and generally accepted among water-works men, that an alkalinity below 10 parts per million resulted in red-water troubles and that if the alkalinity was maintained above 15 parts per million, very little trouble from red water would be experienced. The amount of lime or soda added was therefore increased until the alkalinity was maintained at 15 to 18 parts per million. During all of this period of experimentation, however, no attention was paid to what was



SECTION OF 6-INCH CAST IRON MAIN LAID IN 1887 AND REMOVED IN 1922, SHOWING INCRUSTATIONS

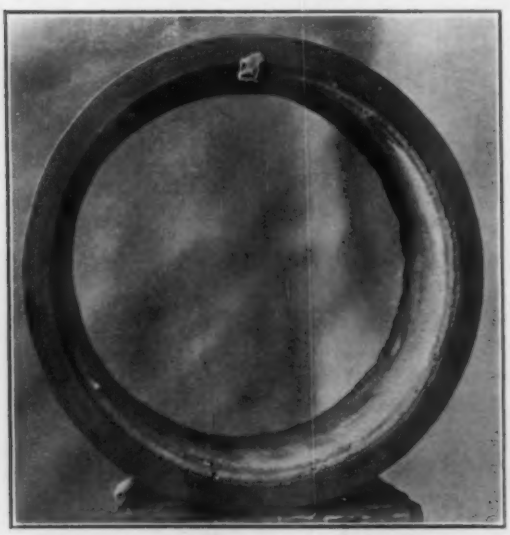
taking place in the mains of the distribution system.

Friction Losses in Mains

Early in 1913 it was noted that the friction losses in the 12 miles of 24-inch mains were greater than would ordinarily be expected in pipes of this age. Tests were made to determine the friction losses, and it was found that the actual friction loss was something over 2½ feet per thousand, as against a calculated friction loss of 1¾ feet per thousand. A contract was entered into with the National Water Main Cleaning Company to clean this main, with the result that the friction loss was restored to practically that of new cast iron pipe. This relief, however, was only temporary; in about a year the friction losses had again increased to 2½ feet per 1,000, and in the spring of 1916 this main was cleaned a second time, the rapid deterioration of the interior of the pipe being due to the continued excessive corrosive action of the water.

In 1917 the plant was purchased by the city of Charleston, and the writer was employed by the city as manager and engineer to operate the plant. About this time the United States entered the World War and the activities in and about Charleston incident to the war materially increased the demand of the 24-inch pumping mains.

In April, 1921, tests were made which indicated that the friction loss in this main had reached 4 feet per 1,000 when pumping at the rate of 6½ million gallons per day. It was at once determined to clean the mains, and tests were made immediately after cleaning to determine the value of "C" in Hazen & Williams formula, which showed that the capacity had been restored to practically that of new pipe. In an effort to determine how fast tuberculation occurred in the mains, it was decided to make a test every 30 days, thinking that 30-day tests would certainly give the information desired. At the expiration of the first 30 days after cleaning, the second test was made and to our surprise it was found that the condition of the main, so far as friction losses were concerned, was about the same as previous to cleaning; that is, the effect of the cleaning had been lost within a 30-day period on account of the excessive corrosive action of the water.



SECTION OF 6-INCH NATURAL CEMENT-LINED PIPE LAID IN 1922. INTERNAL DIAMETER 5⅝ INCHES

Hydrogen-Ion Test Proves Value

Records of the treatment of the water disclosed that the alkalinity had been maintained at 17 to 18 parts per million and that the carbon dioxide content had never exceeded 4 to 5 parts per million. At that time we were not using the hydrogen-ion concentration test. We purchased a set of LaMotte colorimetric tubes and from these we found that while we were maintaining a relatively high alkalinity in the water, using the erythrosin test, the hydrogen-ion concentration did not exceed 6.8 and averaged about 6.5. We were still using milk of lime to restore the alkalinity in the filtered water. That is to say, after the water was filtered, the alkalinity was from 3 to 4 parts per million, to which we added sufficient milk of lime to raise the alkalinity to 15 or 18 parts per million and reduced the carbon dioxide content to 4 or 5 parts per million. The condition was alarming, for, if the amount of lime was increased, it resulted in an increased hardness in the water which made it objectionable for household and manufacturing purposes. We at once began to consider other methods of treatment. Caustic soda, or sodium hydroxide, immediately suggested itself and at first we thought it was prohibitive on account of price, but after inquiries we found that 76 per cent soda could be purchased and delivered at the plant for slightly under $4 per 100 pounds. Accordingly, a carload was ordered and experimental work begun. We found that we could control the carbon dioxide content in the filtered water almost perfectly and could reduce it to zero if desired and maintain it there. It was further found that the hydrogen-ion value could be maintained at any desired figure. Further, the addition of soda artificially softened the water

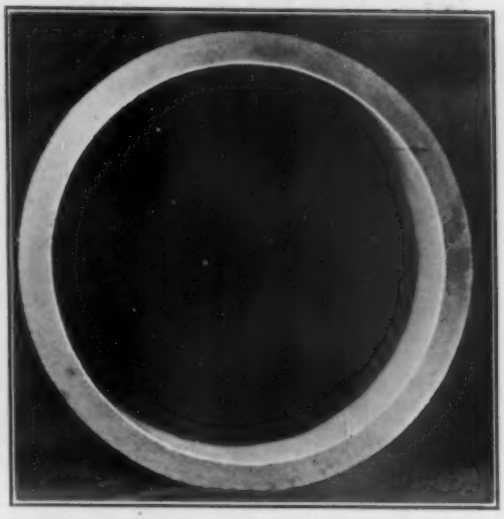
rather than hardened it as the lime had.

No public mention of the change of treatment was made, but the employees of the water department were instructed to keep their ears open and report any comments that were made on the water. No immediate comments were heard, but about six weeks after the new treatment was introduced, we were talking with one of the automobile garage men of the city and he stated that there had been a material improvement in the soap put out for washing automobiles, and one of the housewives reported that there had been a great improvement in soap since the war, as she found that the soap lathered very much better than it had theretofore. Further, one of the principal laundrymen of the city informed the writer that because of the changed condition in the water-supply, he had entirely eliminated the use of water-softening compounds in his laundry.

Since the introduction of the caustic soda treatment we have maintained the carbon dioxide content of the filtered water at from one to two parts per million, the hydrogen-ion concentration at 7.2, and the alkalinity at 22. While no definite figures can be given as to the result on the mains, we feel satisfied that by the change in treatment and the more accurate control of the acidity of the water by using the hydrogen-ion concentration test, we have materially reduced the corrosive action of the water on the mains.

Cement-lined Cast Iron Pipe

In a further effort to overcome tuberculation and to maintain the carrying capacity of our mains, we began in 1921 the use of cement-lined cast iron pipe. The accompanying illustration gives an indication of the tuberculation and incrustation in the 6-inch main laid in 1887 and removed in 1922. This pipe carried artesian water, which is known not to tuberculate or incrustate, until 1903, when the surface supply was introduced, and therefore this tuberculation must have occurred within the last 20 years. The actual reduction in diameter amounted to about one inch, but the carrying capacity, on account of eddying currents, was reduced to less than that of a 4-inch pipe. The second illustration shows the first type of cement-lined pipe laid by the Department. The pipe was lined by placing it vertically and then putting the requisite quantity of natural cement into the pipe and rapidly drawing a cone-shaped projectile vertically through the pipe, plastering the lining out against the side, and the surplus cement mor- it has materially overcome its difficulties.



SECTION OF 6-INCH CAST IRON PORTLAND CEMENT-LINED MAIN LAID IN 1924
Internal diameter 5⅞ inches. Portland cement lining placed centrifugally

this lining was 3/16-inch for 4- to 12-inch size pipe and ¼-inch for 16- to 24-inch pipe. Recently the process of lining has been very much improved and it is now done by the centrifugal method, using portland cement rather than natural cement. It has been found that by the new method a superior finish to the interior coating is obtained; in fact, this surface approaches that of a porcelain finish. The thickness of the lining has been reduced to slightly under 1/16-inch and it has been found that this lining adheres much more tenaciously to the interior of the pipe than the heavier natural cement lining.

The experience of the last three years shows that the cement-lined pipe can be handled the same as standard tar-coated pipe and that the carrying capacity is maintained, no evidence of tuberculation or incrustation being apparent. The coefficient "C" in Hazen & Williams formula averages about 140, and in some recent tests made on the centrifugal portland cement lining this has been as high as 146.

A practical demonstration of the beneficial results of cement lining is given when a hydrant along the cement-lined main is opened. The water runs clear from the hydrant almost immediately, whereas, in the standard coated mains, it takes half an hour or more before the water clears up.

The Department feels that with the combination of the new method of treatment of the water and the cement lining of cast iron mains it has materially overcome its difficulties.

Study Future Street-Lighting Requirements Before Starting Construction

A Comprehensive Survey Necessary to Promote Economy and Serviceability in Lighting Installations

By C. H. Shepherd
Consulting Engineer, Chicago, Ill.

IN spite of the desire to install adequate and efficient street-lighting systems in this country, the brake has been applied in some instances because various city officials are not familiar with the engineering steps required to produce proper and effective results, nor with the legal methods necessary to be applied in such cases. This is principally because modern street lighting has been developed since the special assessment acts for the purpose of installing such utilities as paving, sewers, and water systems, all of which assessment proceedings are more or less applicable to the question of street lighting if properly interpreted.

A common error into which many municipalities fall is that of taking the recommendations of manufacturers' representatives, many of whom sell patented equipment which they desire to specify to the exclusion of the open market. This is a perfectly natural proceeding inasmuch as each company is in business for profit, but many cases have been denied by the courts because of closed specifications which tend to discourage the development of modern comprehensive street-lighting systems, when in reality the solution of the problem is extremely simplified by means of a complete understanding of its various phases.

In the first place, it is poor economy to attempt to install, for instance, a down-town business street-lighting system as a distinct unit without referring to the comprehensive requirements for the municipality's present and future. Such piecemeal additions installed with a view to eventually covering the requirements of the entire community result not only in unavoidable overlaps and duplications, but also in lack of standardization and the consequent inordinate increases in the cost of operation and maintenance.

The science of street lighting is a highly specialized branch of engineering practice, and in this, as well as in every other engineering problem, specialized knowledge and experience are necessary. In order to insure the utmost economy of construction, operation, maintenance, and standardization, a comprehensive survey and analysis should first be made, covering not only the present but also the future street-lighting requirements of many municipalities, based on probable future growth. With these data available, the plans for the present proposed system can economically be drawn up, incorporating the system as at present projected in such a manner that it will constitute an integral part of the future comprehensive system.

A comprehensive layout and an ideal plan toward which the progress of installation should tend is being more generally recognized not only as desirable, but as an absolute essential, and, further, the economies which such procedure introduces are increasingly evident.

Better Lighting Desirable

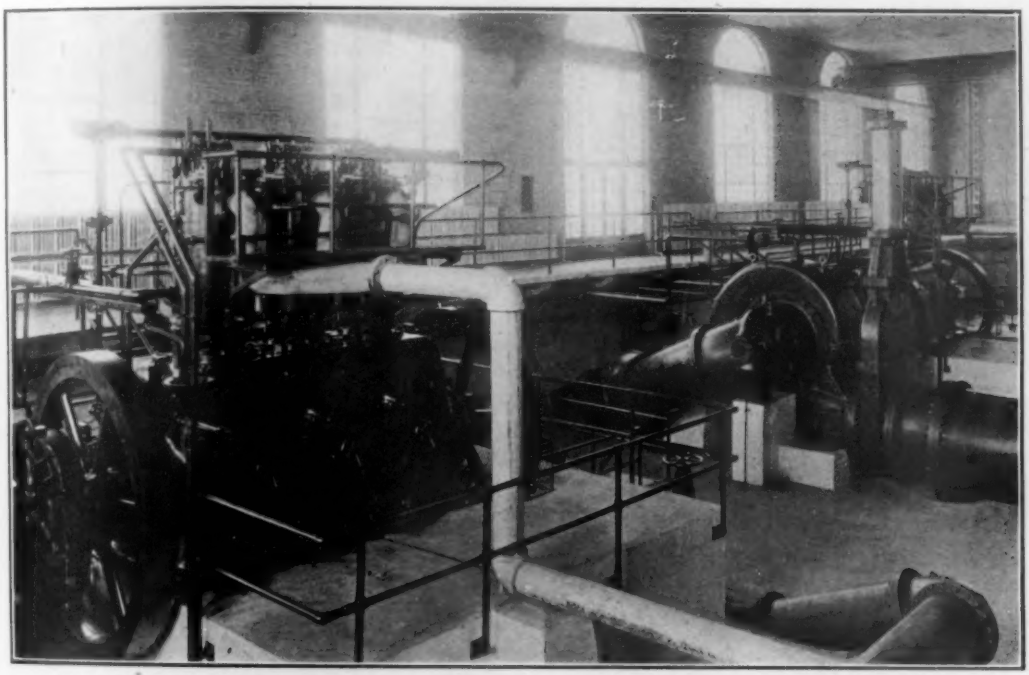
Throughout the last decade great activity has been shown in the installation of modern high-power street lighting in business districts and comprehensive street-lighting systems throughout cities in the United States. Adequate illumination is greatly to be desired in all modern and progressive municipalities for various reasons, among which may be mentioned the fact that street lighting not only tends to afford better protection to the people by means of reducing the opportunities for indiscriminate crime, but also definitely increases property values. It also is a direct and indirect advertisement for progressiveness and civic pride in any community and greatly beautifies the area in which such installations are made.

A Sewage Pumping-Station in Hammond, Ind.

Columbia Avenue Station Handles All Sanitary and Storm Sewage

THE Columbia Avenue sewage pumping-station of Hammond, Ind., handles all of the sanitary and storm sewage originating in an area of 4,680 acres in the residential, business, and manufacturing district of the section known as Old Hammond. Previous to 1923 the sewerage system of the town of Hammond was inadequate because it had five separate gravity sewer outlets into the Grand Calumet River.

During 1922, contracts were awarded for the construction of mains and intercepting sewers and a pumping-station. This work was completed late in 1923, and the pumping-station has since been in constant service. It is of concrete, steel, and brick construction, 52 feet wide and 148 feet long, and is equipped with an overhead traveling crane. The station is heated with steam from a low-pressure boiler, and shower-baths are provided for the engineeering force. A stock-room for oils, waste, and supplies is located at one end of the building under the platform which extends around the entire building.



INSTALLATION OF FOOS GAS ENGINES IN THE HAMMOND, IND., SEWAGE PUMPING-STATION

The station equipment consists of two 20-inch double-suction pumps of 9,000 gallons per minute capacity, connected to 75-horse power, 220-volt, 580-r.p.m. General Electric motors; two 48-inch double-suction pumps of 50,000 gallons per minute capacity each, driven by Foos three-cylinder, 250-horse-power, type V gas engines; one motor-driven priming pump which will prime the small pumps in about 2 minutes and the larger ones in approximately 20 minutes; an auxiliary priming pump driven by a gasoline engine; one 4½ by 2 by 4½-inch two-stage Gardner-Rix air-compressor, belt-driven at 400 r.p.m. by a 5-horse-power motor for filling the starting air-tanks for the main engine; and one 3 by 3-inch two-cylinder air-compressor, belt-driven by a 2½-horse-power Foos gasoline engine.

The sewage is carried under the Grand Calumet River in inverted siphons 6 feet in diameter, delivering the sewage to a grit chamber to which the suction lines of the pumps are connected. The total head is 15.2 feet. The motor-driven pumps are used to pump the sanitary sewage and will take care of the water from the storm sewer during light rains. The

average quantity of sewage pumped daily is 16,156,800 gallons. The total capacity of the station is 118,000 gallons per minute, or 169,920,000 gallons per day.

During a storm early this year it was necessary to use the total capacity of the station and it required 50 minutes of operation before the water-level in the suction basin began to recede, and continued operation of 4 days before the normal level was reached, permitting a shut-down of the gas engine unit. During this period approximately 679,000,000 gallons of sewage were pumped.

The particular feature of this station is the large reserve capacity and its availability for service within approximately one minute. When the station was built, it was determined that there should be two sources of power—one for the regular service, and one for standby service. The gas engines were selected for the latter service. Because of this installation of reserve power and its reliability, the plant is not subject to the standby or ready-to-serve charge, which would amount to approximately $450 per month. When the gas engines are used, gas is available at a rate which permits of developing power at a cost equal to that of the purchased electric power.

Charges Against Vacant Lots for Water-Mains

Result of Investigation by New Jersey State League of Municipalities

TO answer a question raised by New Jersey officials, the Bureau of Municipal Information of the New Jersey State League of Municipalities, of which Sedley H. Phinney is the Executive Secretary, circularized municipal water departments in New Jersey, asking if they had made any charge for water services against vacant lots past which water-mains are installed. The cities of Orange, Morristown, Rahway, Hoboken, Red Bank, Bridgeton and Madison gave negative answers.

Clifton, N. J., according to Arthur S. Mahoney, City Engineer, notifies property owners to make their own connections, and, if they fail to do so, the city directs the water company to make connection.

Joseph Baker, Clerk, Water Department, Dover, N. J., states that the charges made by taxation for hydrant rental are covered in the annual budget. Only actual consumers, however, are billed by the Department.

Roswell M. Roper, Engineer Water Department, East Orange, N. J., states that if water service is desired by a property owner in a street not having a water-main, he, together with the other owners having frontage in that section of the street requiring a main, sign an agreement with the Water Department in which they guarantee, in revenue to the Department, 10 per cent of the cost of the water-main per year for a period of ten years. Against the 10 per cent each year are credited the water rentals for any properties actually using the water, and the balance is paid in cash. When the water rentals equal or are greater than the 10 per cent, the agreement is automatically terminated, if this condition occurs at any time before the ten years are up.

John W. Judson, Chief Accountant, Water Department, Newark, N. J., states that all water services are installed from curb to main by the Division of Water and are charged for at as nearly actual cost as possible. If these water-service charges are not paid they are filed with the Comptroller as a lien against the premises.

Alvin Bugbee, Superintendent of Water-Works, Trenton, N. J., states that his department installs service pipes at the property owner's expense before a street is paved. This charge is made uniform whether the service is long or short, the charge being $32.50. This covers the service from the main to the curb, including the curb stop and box.

CONSCIENTIOUS OBJECTORS CONVERTED

A health officer in the northern part of New York State contributes to a recent issue of Health News, published by the State Department of Health, an account of his experience in a town where there was a great deal of opposition to vaccination. When called to attend a particularly bad case of smallpox, he had the patient's bed moved near the window. He says: "Vaccination became during the following week a popular pastime, and there are very few in this locality now who have not been vaccinated, although this happened twelve years ago."

A Public Menace and a Suggested Cure

By B. E. Wickliffe

EVERYONE is familiar with the disturbing quantity of sputum encountered on city sidewalks and crossings, even the spitters themselves. Lack of funds, or lack of either civic pride or political backbone on the part of municipal officials, is largely responsible, as well as an apparent indifference on the part of the public.

Of course there are laws prohibiting this practice of promiscuous expectoration. The problem has been the practical enforcement of these laws—how to penalize violators without calling the entire police force off other vital duties and without taxing the capacity of the jails.

But there is a promising means of effectively combating this health-threatening evil, other than force. This is persuasion through advertising. It is quite within the bounds of possibility, even probability, that herein lies the solution. For, after all, it is only by appeal to the offenders' sense of pride and fairness that their genuine cooperation can be assured, since unheralded force would but unreasonably antagonize them.

A Public Appeal to the Offender's Pride

I am aware that THE AMERICAN CITY is a record of achievement rather than of unsupported theory; but here is a difficulty of such long and painful standing, and of such widespread interest, that I feel the presentation of this suggestion to be well justified. So here goes. Suppose in to-morrow morning's paper you read the advertisement opposite.

There you are. A public appeal to the offenders' pride, through a "surprise" advertisement calculated to *startle* them into thoughtfulness. Some foks will say that the "criminal" spitter has no pride—but he has. It's present somewhere in his make-up, and it is my belief that such an advertisement and appeal will bring it to the surface.

There is another element involved, which may prove even more effective than that of pride. This element is self-consciousness. After the broadcasting of such publicity, offenders will undoubtedly catch themselves looking around sheepishly after they forget through force of habit and have just deluged a sidewalk with tobacco juice or germ-laden sputum—that is, all but the few hopelessly hardened cases. With the bulk of the offenders trying to do right, however, it is reasonable to believe that the police could soon cure the others. A few arrests on the down-town streets would provide supplementary "advertising" of a convincing sort.

Attention!

H A W G S

No, we haven't misspelled it. We don't mean the kind that roots, but the human variety, for which the above spelling is hereby officially adopted to designate these fellows who persist in dropping evil deposits on our city's sidewalks and crossings—not to mention lobbies, street-car floors, elevators, etc.—for their fellow citizens to tread on; for women and little children to step upon and carry on their shoes to spread filth and disease germs in their homes!

To be blunt, we mean these fellows who thoughtlessly spit everywhere they go. Whether they also do this in their homes is not the question, for that's THEIR business. But when they use our public walking places for expectorial targets, it's OUR business. (That's a good word—expectorial Some folks tell us that the ornery cuss or Hawg who spits on sidewalks where women and children follow him won't understand what such words mean, but we happen to know that many of these cusses include well-to-do, educated—otherwise—men.)

Yes, we know you're saying: "This ad cost the city a lot of money." And, yes, we admit it—BUT it didn't cost nearly as much as you fellows are costing in lives of children and your other fellow beings by spreading disease germs underfoot.

Be Fair

—and considerate of others. If you have unthinkingly been one of those guilty of the foregoing offense, resolve to begin right now to set an example to others by spitting in the street (gutters preferred, and avoiding crossings) and never on a public walk, floor, or wall. Come to think of it, why not make your spitting an ART—if spit you must. Be a GOOD spitter while you're at it. Stick to the rules.

Here's to a cleaner, neater city, with EVERYBODY pulling for spitless walks and public floors—and healthier, happier children, women and fellow men.

You'll help, won't you?

A SUGGESTED NEWSPAPER ADVERTISEMENT FOR AN ANTI-SPITTING CAMPAIGN

FIELD HOUSE IN WESTON FIELD, SCRANTON, PA.,
The donor, C. S. Weston, recently provided a handsome addition to this house, through a gift of $150,000

City Funds and Private Gift Provide Better Recreation for Scranton

By Weaver Pangburn
Playground and Recreation Association of America

THROUGH a cash appropriation of $80,000 by the City Council and a gift of $150,000 by C. S. Weston, donor of Weston Field, the city of Scranton, Pa., has this year provided for handsome additions to its recreation facilities.

The city appropriation was for swimming pools in three sections of the community and supplemented a fund provided for the purpose three years before through a bond issue. The $150,000 will be expended for a large combination auditorium, gymnasium, and indoor swimming pool. By the summer of 1926, Scranton will have four modern swimming pools in addition to Lake Lincoln in Nay Aug Park.

Scranton did not come into these funds miraculously or easily. Back of it all there is a story of careful and patient planning and effort, of enthusiastic agitation and hard work, of disappointment and delay, and of steady crystallizing of public opinion. Frank E. Sutch, Superintendent of Recreation in Scranton, could tell many stories about the campaign if he would. So could the Reverend Robert Kreitler, Chairman of the Recreation Commission, the members of the Recreation Council, and the hundreds of other persons in Scranton who have been enthusiastically working for the development of Scranton's public recreation program.

In 1922, the voters of Scranton approved a bond issue of $30,000 in three equal items for swimming pools in three sections of the city. The bond issue provided for the sites only. The idea had been vigorously advocated by Rotary and Kiwanis.

It was one thing to pass the bond issue and another thing to get the swimming pools. Immediate action was not taken toward securing either sites or pools. The Recreation Department of the city, seeing the need of keeping public attention on the subject, kept the idea alive by forming a swimming pool division of the Recreation Council. This council is a private group representing more than forty organizations in the city and supplementing the work of the official city Recreation Commission. The chairman of the council met with the City Council from time to time. Newspapers played up the swimming pools. Finally, in one section the city purchased a site selected by the Neighborhood Association.

The second site was donated, and the Council eventually bought a third site from a separate fund not covered by the bond issue. This left a balance of $21,500. With the sites secured, the question now remained of securing

the pools themselves. Standing in the way of early action on this was the fact that swimming pools were third in order of preference in expending funds from bond issues. Preceding the swimming pools were sewers and paving. The swimming pool advocates tried to get items two and three reversed. The question came up time and time again. When it came up in the spring of 1925, the Recreation Department had brought in a swimming pool expert from New York City. He met with the city officials and explained the necessity of securing completely equipped swimming pools as distinguished from concrete holes in the ground. When he said that these would cost from $25,000 to $35,000 each, he fairly staggered the Council.

A second time this expert was brought in and this time he met the community leaders, from whom a committee was appointed which appealed to the City Council. The Council then appropriated $25,000 for each of two sections of the city, and $30,000 for the section where the original $10,000 had been cut into by the purchase of the site. This made a total cash appropriation of $80,000. Scranton thus has $30,000 for each of two pools, and $31,500 for the third.

Last March, C. S. Weston, who had already donated the eight-acre Weston Field to Scranton, gave $150,000 additional, making his total contribution to the field a quarter-million dollars. This eight-acre tract is beautifully landscaped and planted with shrubs; it has four tennis courts, a handball court, and a quarter-mile running-track, in addition to an open-air dance pavilion, a gymnasium and a shelter house.

The recreation program in Scranton is supported entirely by the municipality, and the budget has been constantly rising in recent years because of the increased public approval of its activities. The 1925 budget was 11 per cent greater than that of 1924, which, in turn, was 27 per cent greater than that of 1923. Only a few years ago, according to Mr. Sutch, such developments would have been impossible in Scranton. Last year Scranton also got one of the Harmon fields, and this year the city is competing for the thousand-dollar prize appropriation in a new Harmon Foundation offer.

Helpful Hints for Public Health Officers

AT the New York State Conference of Mayors and Other Municipal Officials, held in Syracuse, June, 1925, a valuable paper on "The Essential Features of an Efficient Health Department or Bureau for a City or First-Class Village" was presented by Matthias Nicol, Jr., State Commissioner of Health. Dr. Nicoll expressed his opinion that every city of 50,000 population or over should have a *full-time* health officer or commissioner if real progress is to be made in all phases of public health work. For the smaller municipalities the establishment of a *county* health organization was recommended, this organization to be in charge of "a full-time, thoroughly qualified county health officer and a sufficient staff of assistants or deputies, who may well be chosen from the list of local health officers."

Coming down to specific details as to important factors in administration without which success cannot be fully realized, Commissioner Nicoll said, in part:

"The health officer need not be a skilled budget maker, but should be able to set forth in a businesslike way for transmission to the finance authorities the needs of his department or bureau. Requests for additional appropriations should be accompanied by exact memoranda as to what has been accomplished in other communities and what is hoped to be accomplished in his own.

"A High Tax-Rate Is Better Than a High Death-Rate"

"The support and backing of influential members of the community for adequate appropriations for new projects will frequently go a long way toward having them granted. Unfortunately, the proportion of money spent for public health as compared with other activities of government is a shamefully inadequate recognition of the importance of good health work. The per capita expenditure for health [in New York State] varies from 10 cents to $1.50 or more. As expressed by the motto of the State Department of Health, "Public health is purchasable," and, in the words of one of the mayors, "A high tax-rate is better than a high death-rate." It lies wholly within the power of every community, by intelligent procedure, to procure just as much public health as it is able and willing to pay for.

The Health Officer's Headquarters

"Whether a health officer be on part- or full-time, he should have a definite place and time at which he may be consulted. In my opinion, it is extremely desirable that his official office should be located in a public building, in cities in the City Hall, and not in his private office. In some places, his headquarters may be established in a so-called Health Center, in which all the public health activities of the community are carried on. The office need not be large, but there should

be adequate space provided for desk room, filing cases, and spot maps for keeping daily record of communicable diseases, milk supplies, and other data. There should be a consultation room with equipment suitable for the performance of vaccination and other specific preventive measures, and for the examination of persons required by various provisions of the public health law. Adequate stenographic and clerical service should be furnished.

It is possible but not practicable to set a minimum number of hours which the health officer should devote to public work in the case of part-time service. In most instances he is devoting much more time than he is paid for or can well afford, but there can be no question that a properly qualified person familiar with the technical details of his work should be available as the health officer's representative during the usual official office hours, and that in the case of a real emergency the health officer should be accessible at any time of the day or night. The custom of having the health officer represented in his absence by a clerk, stenographer, or lay inspector is all too common and does not make for efficient service. A well-qualified public health nurse, provided she makes herself proficient in administrative details, may well represent the health officer in the smaller communities.

Keeping the Public Informed

"Since public health work is largely dependent on public health education, it is extremely essential that there should be some machinery, however simple, for keeping the public informed of what is being done for their benefit and what, with their cooperation, may be accomplished. The health officer himself can do much to interest his public by addresses made before various local organizations, and usually by obtaining the cooperation of the local press in publishing interesting and timely articles at regular and frequent intervals regarding his work. Most editors are more than willing to cooperate in this way, but in order to have the articles acceptable and widely read, it is essential that they should be well written, to the point, and of real interest to the man in the street. If the health officer himself is not able to do this work, it is not usually difficult to find some one in the community—possibly connected with a local newspaper—who, for a reasonable consideration, will undertake it. In the large cities, this work should be placed in the hands of a salaried individual, not necessarily, however, on a full-time basis.

Nursing and Laboratory Service

"Every community should have adequate public health nursing service, but it may be stated that few at the present time fully meet the requirements in that field. In the larger cities the work should be directed by an official supervisor of nurses. The question as to whether a nurse should do generalized or special nursing service is largely academic and should, in my opinion, be determined by the population of the community and the amount of nursing service available. While theoretically it is advisable that there should be a nurse for tuberculosis, child hygiene, infectious diseases, etc., it is perfectly evident that in the smaller communities, or those in which for one reason or other there is inadequate nursing supply, such specialization is neither possible nor desirable.

"It goes without saying that there should be adequate local laboratory service. The state laboratory is already overtaxed, and even with the rapidly growing numbers of local laboratories is hardly able to keep up with the routine diagnostic work. Public health procedures are founded in great part on laboratory work, and the interest of the medical profession—which is all-important in such work—is more readily obtained by furnishing them with prompt and adequate laboratory service than in any other way. Included in the laboratory service should be ample facilities for the routine examination of the water and milk supplies.

Aid from Unofficial Agencies

"The health officer, as I have already stated, should be the director of all public health work in his community, but this does not mean that he should not cooperate with and encourage the work of unofficial bodies and individuals who have anything of value to offer. The State Department of Health has set an example in this respect, and I am very glad at this time to express the debt of gratitude which the Department owes to unofficial agencies engaged in public health work. If a common purpose to benefit the public be kept constantly in view and there be not an undue desire to obtain credit for results accomplished, with the exercise of a little tact and judgment all difficulties which may arise will be found readily soluble."

Extravagance and Waste in the Unplanned City

ALTHOUGH it is more often lost sight of than kept in mind, it is nevertheless a fact that a direct relationship exists between the proper planning of a community and such considerations as the extent of its municipal indebtedness, the amount of its tax rate, the volume of new capital seeking investment in the community, the increase of population, and the range of property values in the city.

The lack of a city plan invariably means official extravagance and waste. Urgent improvements may be ignored or unduly postponed. Less needed improvements too often follow one another in rapid succession. Such improvements as are undertaken are generally uncoordinated with one another—at times they are even antagonistic to each other. There is little or no balance in the development of the city; one section is overbuilt, another underbuilt. That part of the city which is best organized and the most vociferous in demanding consideration carries off as a prize a disproportionate share of the parks, playgrounds, fine schoolhouses, and public buildings.

Ignoring the existence of city planning problems is not to solve them. They will come back for solution though we choose to blink our eyes to their existence, and when they finally do demand that something be done, they cost us mighty dear because we have not solved them in time.

—HERBERT S. SWAN

New Municipal Hydro and Steam Power-Plant for Colorado Springs

By Jack F. Lawson

COLORADO SPRINGS entered the field of municipal operation of its power-plant on July 1 with a modern electrical installation. The unit, when completed, will cost about $500,000. The plant will embody the latest development in electrical science, as to type of buildings, arrangement, and equipment.

The hydro units will draw water from the municipally owned reservoir, the source originating in the upper levels of Pike's Peak, more than two miles above sea-level. The water is stored in reservoirs after passing through the hydro plant. The city generating system will consist of three parts—two hydroelectric units, one at Manitou and the other at Ruxton Park, and a standby steam plant. These three stations will furnish virtually all of the electric light and power for the region.

The hydroelectric plant at Manitou will consist of three 750-kw. generators, attached to Pelton water-wheels operating under a 2,300-foot head. The hydroelectric plant at Ruxton, three miles above Manitou, will consist of one 1,000-kw. generator attached to a Pelton water-wheel operating under a 1,100-foot head. The water for this plant will be taken directly from Lake Moraine, which is a part of the city water-supply system, and after passing through the plant will pass into the intake of the Manitou plant. The water which flows from Lake Moraine for use in the city has a fall of over 3,400 feet before it reaches the city mains, and in this distance produces power at the Ruxton and Manitou plants. The Ruxton plant will be automatic and handled by the operators in the plant at Manitou. Only one man will be stationed at Ruxton.

The steam plant located in Colorado Springs is now being constructed and will contain two 2,500-kw. Westinghouse Turbo generators producing current at 6,600 volts, with Westinghouse surface condensers, three Wickes horizontal type boilers, three Sturtevant high-pressure economizers, and three low-pressure economizers. The boilers are equipped with Combustion Engineering Corporation type-E stokers and Elasco superheaters. All auxiliary apparatus will be driven with General Electric motors. Water from the boilers will be taken from condensers and therefore distilled, excepting a small amount needed for losses,

NEW STEAM PLANT FOR THE COLORADO SPRINGS MUNICIPALLY OWNED HYDROELECTRIC POWER SYSTEM

which will be furnished by evaporators installed for that purpose. The boilers will therefore accumulate little or no scale, eliminating cleaning.

The switchboard will be located at one end of the engine room and all switches will be installed in a switchroom at the rear so that only the face of the switchboard will show from the front. A full complement of indicating and recording instruments is included with the switchboard. A novel feature is that each machine will have its own voltage mounted on the machine, and each generator its own direct-connected exciter.

The engine-room will be equipped with a 15-ton Whiting gantry crane for lifting and moving the machinery. The boilers will provide steam at 325 pounds pressure and 200 degrees superheat. There are very few boilers of this pressure in the West, this being the third plant in the state to be so equipped. The first one was at Fort Morgan, Colo., installed about a year and a half ago, carrying about 300 pounds pressure, and the new plant of the Public Service Company at Valmont was the second and carries 350 pounds pressure.

No high stack will be used, as the boiler will be equipped with fans for creating the draft, and short stacks extending only through the boiler-room roof will be required to carry off the products of combustion, which should be practically smokeless. These fans will be driven by General Electric brush-shifting, variable-speed induction motors.

The water for condensing will be taken from Fountain Creek when obtainable in sufficient quantities. At other times it will be recooled by means of a spray pond, so as to be used over again.

The foundations for machinery and for the walls of the building and the coal-bins are of reinforced concrete. Coal will be brought in railroad cars over the coal bins and dumped. From there it is elevated to overhead bunkers, where it will be fed automatically into the stokers. From the time the coal is dumped into the bins until the ashes are dumped into cars or trucks, no manual handling will be required. The boiler-room will not be separated from the engine-room by walls, and therefore a minimum amount of labor in running the plant will be required.

The superstructure or building proper will be of dark-colored pressed brick with terra cotta trimmings. The entire inside of the building will be lined with light glazed brick, and the boiler settings will have an outside layer of the same brick. Ample ventilation and light are provided. The roof will be composed of monolithic gypsum and covered with composition roofing.

The city acquired the branch of the railroad which puts the plant on two roads. Railroad side tracks are conveniently located for unloading machinery and material.

Causes of Breaks in Cast Iron Water-Mains

By V. Bernard Siems
Water Engineer, Baltimore, Md.

IT would appear that the number of breaks in water-mains in the city of Baltimore has increased in recent years. As there must be a cause for this condition, careful studies have been made of each of the breaks lately experienced in order to devise, if possible, a means to overcome these failures. From the observations made and the statistics which have been collected, it can be shown that breaks in water-mains constructed of cast iron pipe result from the several causes which are discussed below.

External Forces

Vibration from heavy trucks is one of the major causes of breaks. Especially is this the case where other subsurface structures have been carried over or under existing water-mains and have thus disturbed the earth support on a section of the water-pipe. This section of pipe acts as a straight beam supported at two points, or as a cantilever supported at one point, and carries the weight of the earth in addition to the load transmitted from the heavy trucks on the surface of the highway. A break in these cases occurs without notice and the usual damage is great, provided the water-mains cannot be shut off immediately. Vibration tests conducted by the Water Department with the use of instruments have confirmed the accuracy of these statements and are of assistance in the design of future installations.

The opening of joints or the loosening of jointing material by vibration from electric railway cars, steam locomotives, and especially heavily loaded trucks is another cause. These causes result in the settlement of the pipe at joints and, after a time, failure of a section of pipe due to rupture of the joints or unequal support and consequent opening of the joints. These cases commence as a small joint leak, but the number of failures resulting has been minimized to a great extent by the pitometer and water-waste surveys conducted by the Water Department on the distribution system, by which small leaks are readily detected.

Internal or Subsurface Sources

Breaks as described above are less apt to happen after the backfilled material in the trench around the pipe has become firmly settled and compacted. In the last 18 years much work has been done in the placing of subsurface structures such as sewers, drains, gas-mains, electrical conduits, etc., and there is no doubt that the effect of this work to a great extent has been to cause numerous water-main breaks. In a number of instances not only have breaks occurred on water-mains but the highway paving has settled as well, on account of the disturbance and settlement of the material supporting it by the construction of tunnels.

What Are You Doing to Prevent Breaks in Water-Mains?

If your department is not already making a study of the causes of breaks in cast iron mains, it will be well for you to examine Mr. Siems' article, particularly to show the fine work which the Baltimore Water Department is doing along these lines.

Investigations are particularly necessary in southern cities, where water-mains are laid much nearer the surface than in northern cities because of the absence of danger of freezing. With the rapid development of many southern industrial cities, this problem is becoming more acute.

Another cause is the past practice of supporting bends in water-mains in a horizontal plane with wooden wedges and blocking to prevent movement due to pressure. This blocking as the years go by has rotted or been disturbed, the support loosened, and the movement of the pipe and the spreading of joints result. The present-day practice is to place concrete piers beneath these bends where the bends are in a horizontal plane and to strap the bends with steel bands encased in concrete when they are on a vertical plane.

Defective pipes that are not discovered by the most thorough tests before installation are a third cause of internal or subsurface rupture. Cast iron pipe is subjected to severe tests in the foundry. It is carefully handled when unloading from the cars at railroad sidings and also when distributed at the various places where installations are to be made. The cost of inspection of this pipe in the foundry varies from 25 cents to 30 cents per ton, with an added expense for testing on the job by Water Department employees before placing it in the trench. It must be borne in mind that cast iron has a longer life than almost any other material used as ducts to convey either gases or fluids. It is known that some cast iron pipe in Europe has been in service for 300 years and is still being used to convey water to the consumer. Some of the largest water-mains in the city of Baltimore have an age of 70 years, and the breaks that have occurred on these mains have not been due in any respect to the condition of the pipe, but to external causes. All cast iron pipe now installed in Baltimore is in accordance with the American Water Works Association standard as to size and thickness.

Another cause of deterioration is stray electrical currents. These instances, however, are becoming more rare at this time. One of the North Avenue mains seems to show the most serious case of deterioration by stray currents from electrical railway operation. By cooperating with the electric railway company, all cases of possible deterioration are minimized by the installation of a return circuit to the substation. It is expected that further failures will be experienced from electrolysis in this location for a few years.

Deterioration Due to Acid in Cinder Fills

In recent years, wherever a water-main is installed in cinder fills, it is the practice to remove all such material by opening a large area of the trench and placing selected material around the pipe; in fact, such precautions are taken to prohibit the refill of trenches with cinders where repairs have been made. A selected material is always placed over the pipe, and cinders are used only for the upper 6 inches of the trench back-fill, to prevent damage to vehicles passing over the trench by forming a more or less hard surface for traffic. It is assumed that it is hardly possible that from

the 6-inch covering on the surface the acid will penetrate through the selected material to the cast iron pipe.

Covering of Water-Mains

The larger sizes of water-mains are being installed at a great depth to prevent the effect of vibration from trucks. The backfilling of the trench around the pipe and over the pipe has been given serious consideration. Special precautions are taken to see that proper tamping and puddling of the material takes place. The practice on smaller pipes is to place, tamp, and puddle the material from the bottom of the trench to a foot above the pipe, this depth varying, however, to a greater amount in the larger sizes of pipe.

It is estimated from statistics in our files and from information obtained from private water companies and municipal water departments that 90 per cent of the water-main breaks are due to the removing of the support under the pipe during the installation of other utilities and substructures, and to the vibration described under "External Forces" above. The condition of water-mains due to vibration is not noticeable in the northern cities as in the southern cities, because in the northern cities the depths to which water-mains were laid years ago was controlled by the depth to which the frost penetrated, which, of course, is greater in the northern cities than in Baltimore. It is most noticeable in the southern cities where the water-pipe are laid with a very shallow covering. In Baltimore this depth was originally 3 feet. Vibration over the water-pipe has made it practically necessary in recent years to place greater covering on the top of water-pipe, since the Department considers this, rather than the penetration of frost, the controlling factor.

The problem of breaks in water-mains is universal throughout the United States, modified, of course, by the foregoing conditions and by the water pressures maintained on the distribution systems. It is true that difficulties have at times been experienced in the case of work which has required exceptional speed in construction in order to maintain uninterrupted water service. But such cases are rare. The gas company is experiencing similar difficulties in its subsurface structures. The breaks experienced by the Water Department are on mains of all sizes, and considering the extent of the system, which comprises approximately 1,450 miles of pipe from 6 to 60 inches in diameter, the number is certainly not excessive.

We are endeavoring to meet the new conditions of traffic and failures of water-mains by improving the quality of pipe and by the use of reinforced concrete and steel pipe protected by a coating, for the larger distribution systems, and by the location of valves at closer intervals. Cast iron pipe, however, is favored because of its remarkable durability and long life.

We consider it significant that, coincident with the increase in the number of water-main failures, efforts are being made by highway and road engineers to prevent deterioration of roadway subsurfaces by controlling the excessive loading of motor trucks, for the motor truck has brought about new traffic conditions which are showing their effects, not only on the highway structures themselves, but upon subsurface structures as well.

ACKNOWLEDGMENT.—This article is prepared from Mr. Siems' discussion of this subject in the *Baltimore Municipal Journal.*

Sewage Settling and Septic Tanks Alone Do Not Produce Safe Effluents

THE rapid increase in the number of rural water-supply systems and the resulting production of relatively large volumes of sewage has led to the installation of many septic or settling tanks for the treatment of sewage before its discharge into streams, lakes or subsoils. Many municipal authorities are misinformed regarding the function of such tanks, so that, unknown to them, conditions exist which are a menace to health. It seems to be the prevailing opinion, according to *Health News*, published by the New York State Department of Health, that the overflow from such tanks is harmless and can be safely discharged upon the surface of the ground or into bodies of water used for potable purposes or for bathing. This idea is also held by many plumbers and commercial agents who build or sell ready-made septic tanks.

Instances are on record in the New York State Department of Health where people who have been very much aroused over the dumping of garbage into lakes used as sources of water-supply have been unmindful of the dangers resulting from the discharge of settled sewage into the same lakes. It is therefore very important that health officers and engineers inform those owning or installing sewage settling tanks regarding the true function of these structures and the dangers resulting from the improper disposal of the effluent from such tanks.

Beauty as a Factor in City Development

By H. R. Ennis

Past President, National Association of Real Estate Boards

TO those who have viewed America first, and then Europe, comes the certain knowledge of the necessity of better and wiser city growth in America. Why do we go to Europe and other distant countries? Is it to study industrial development, great manufacturing plants, the business growth of any particular place, or the commercial activity of the countries visited? I am inclined to the opinion that it is none of these, but rather to see the beautiful things and places which these countries possess—Westminster Abbey, St. Paul's Cathedral, Houses of Parliament, Versailles, the Louvre, L'Arc de Triomphe, the beautiful boulevards and streets of Paris, Unter den Linden, the great art galleries, and other notable structures.

During my term as President of this Association, I was privileged to see many American cities. As I look back, I can recall only a few of them which left an impression upon me of being beautiful and which created within me a desire to return in order that I might more fully enjoy their development. American cities are lavish in their expenditures for comforts and things that make living beautiful. There is no other country that spends so much money for luxurious stores and modern office buildings. In every city are residential districts which are beautiful and distinctive to that particular city, but one cannot help wondering, after all these lavish expenditures, why it is permitted that their effect be marred by other things such as glaring bill-boards, overhead signs, dirty, filthy vacant lots, and old dilapidated buildings which should be condemned and destroyed.

Property owners have a perfect right to demand that no one be permitted to erect in a community a building which does not conform to surrounding properties. I have no right—neither have you—to go into a community and erect a building which will destroy the value of the properties then in existence, and it should not be permitted.

The wise property owner realizes more fully to-day than ever before that if he keeps his improved property in first-class condition, and his vacant lots clean, he receives a higher income and a better tenant for the property and a much higher price and a much better citizen for his vacant ground. If cleanliness be next to godliness, filthy conditions suggest corruption and decay. It seems strange that people will allow a piece of valuable property to become of less value simply from neglect and the failure to expend money for paint and incidental repairs, when by a nominal expenditure for such a purpose they could secure more desirable tenants and an increased income.

It is seemingly impossible to have property owners protect their own property or adopt a plan to regulate the use of bill-board advertising. To my mind, the only way in which effective work can be done is through our state legislatures. The state governments and the National Government are to-day carrying on a program costing millions of dollars in building good roads and highways. Every one can recall places where the scenery is absolutely destroyed by bill-boards. Are we going to permit these beautiful highways, over which millions of people are passing, to be places where sign-boards shall be erected to destroy the beauty of the surrounding scenery and to become a menace to life? The public has a right to demand protection. The scenery is God's gift for the enjoyment of humanity. No one should be permitted to destroy it, and those who are doing so should be restrained.

Industries for economic reasons are branching out continually in order to better meet the demands of their business. While railroad rates and transportation costs mean much in the location of a new plant, the city itself has quite a deciding influence. Big business is interested in city government, schools, churches, places of amusement, playgrounds, and parks. These things make for better citizens and employees, and big business realizes that happy and contented employees produce increased dividends. Those who live in a clean, healthy atmosphere think cleaner and live cleaner. We should be deeply interested in these matters, for to us as to no other business men have been given the great opportunity and the great responsibility of leadership in city building and city planning—and remember that the cities having commercial advantages plus those things that make for happiness and contentment will be the cities that will more easily attract new industries and new people.

ACKNOWLEDGMENT.—From an address delivered at the annual convention of the National Association of Real Estate Boards, at Detroit, June, 1925.

Fundamentals of American Zoning

With Special Reference to the Vital Importance of Court Review

By Edward M. Bassett

THE American states have all the powers of the king and people of England as they existed before the American revolution except such as the states have granted to the United States Government by the Federal Constitution. If one wants to know the powers of the United States Government, he must read the United States Constitution, and if a certain power is not given there, then the Federal Government does not have it. The states also have written constitutions, some of them antedating the Federal Constitution. The United States Supreme Court can declare void any act of the Congress (which is the legislative body of the Federal Government) if that court considers that the act transgresses the scope of the Federal Constitution. Strangely enough, one will find nothing in the Federal Constitution which gives the court this power, but John Marshall, the first Chief Justice of the United States Supreme Court, thought that his court should have this power, and as he was an exceedingly determined man, he started off this government his way. Similarly, the written constitutions of the states say nothing about the courts having this power to upset the doings of state legislatures, but all the states have followed the Federal Government in yielding this power to the courts. Accordingly, each state legislature can pass laws for the benefit of all the people of the state, covering all the fields not delegated to the United States Government, but if a law takes away individual rights guaranteed by the state constitution, and then some citizen asserts his constitutional rights before the court, the court will say that the law is void. Every state constitution declares that a person shall not be deprived of his property without due process of law or words to that effect. What does "due process of law" mean? It means that body of law written and unwritten from time immemorial gained by the people of England to protect their persons and property, and added to for the same purpose since the independence of the American states.

It is handy to have a word that means this particular field of court approval. It would be cumbersome to keep describing it as that field of legislation regarding personal and property rights which the courts consider to be in accordance with due process of law. Consequently we have an American short-cut word. It is the "police power." What the courts will not set aside is within the police power of the legislature. What they will set aside is beyond the police power of the legislature and therefore void. It is quite plain that countries where the courts have no power to set aside the acts of legislatures, can have no term equivalent to our word "police power."

Keeping these fundamentals in mind, we move on to the subject of zoning. Zoning is that legislative invocation of the police power by which the government regulates the height and bulk of buildings, the use of buildings and land, and the density of population. But zoning, like other police power regulations, must

Making Zoning Ordinances Flexible

This paper was prepared for the International Town, City and Regional Planning Conference held in New York last April. Because of the presence at the Conference of more than a hundred delegates from outside the United States, representing some twenty-four different countries, Mr. Bassett outlined certain fundamentals of American law with which our own municipal officials and city planners might be assumed to be familiar, but which, unfortunately, are not as generally understood and observed as they should be. It is for this reason that the paper is here published in full.

For cities already zoned, Mr. Bassett's clear analysis will aid local boards of adjustment in understanding and explaining their own functions; and for the hundreds of other municipalities now considering the adoption of zoning, it is hoped that the paper will serve to emphasize the vital importance of retaining the most competent technical and legal advice in the drafting, interpreting, and defending of zoning ordinances.

not transgress the rights of property owners guaranteed to them by the "due process of law" provisions of state constitutions. If the zoning regulations do so transgress, they will be declared void by the courts.

A generation ago modern zoning under the police power would have been difficult, if not impossible. The growth of community needs, especially the needs of cities, has necessitated adjustments of private rights to community welfare. The courts have checked a too rapid acquiescence in community demands, yet have on the whole recognized the constantly enlarging scope of the police power. Zoning probably arrived about as soon as there was a wide-spread popular conviction that community protection of buildings was compatible with the preservation of private property rights. Comprehensive zoning came about nine years ago, and was first developed and applied in the city of New York.

Although the state legislature is the repository of the police power, it does not do the actual zoning, but grants that power to municipalities. Cities, villages, and other municipalities are in this country considered to be the creations of the state government. The first step, therefore, in zoning the municipalities of a state is for the state legislature to grant its municipalities the power to regulate the height and bulk of buildings, the use of buildings and land, and the density of population. This grant of power can be, and experience is showing that it ought to be, a blanket grant to municipalities of all sizes. The smallest town needs the same comprehensive power along with the same checks and safeguards as the largest city. The form of state enabling act for zoning has become quite well standardized. The latest forms which have had the benefit of ten years' study and experience are far superior to the early legislative drafts. As the state enabling act is merely a grant of the police power to municipalities with appropriate safeguards, it is not likely that the courts will declare the enabling act unconstitutional. This course has been followed almost invariably by the courts. The reason is plain. The legislature grants only the power that it possesses in relation to such regulations. It could not grant more if it tried. The application of the power is made by the municipality, and then for the first time objection can be raised by any property owner that particular regulations deprive him of his constitutional property rights. This is why the courts upset provisions of ordinances but not those of state enabling acts for zoning.

Fundamentals of the Police Power

The courts of this country have gradually established certain fundamentals of the police power. They say that the invocation of the police power must be based on considerations of the health, safety, morals, and general welfare of the community. They are careful not to define the police power, because community needs may require a larger and larger application. On this account the words "general welfare" do not for this purpose have the precise meaning, neither are they entirely indefinite, because the courts will look to previous court decisions to see how far considerations of general welfare have been held to be within the police power. Accordingly, it can be seen that the police power is court-created, court-controlled, and court-enlarged, but in its enlargement the courts somewhat follow public sentiment as it becomes more wide-spread and discriminating. They properly follow it rather conservatively. Some states follow more conservatively than others. On the whole, the courts probably enlarge the scope of the police power at about the right rate. The courts will set aside and declare void any zoning regulations that are not based on the health, safety, morals, and general welfare of the community. Thus far, the courts do not recognize esthetics as within the scope of the police power.

As regulations established under the police power are designed to protect the community, the courts hold that they must be impartial—that persons and property situated alike should be treated substantially alike. The courts call a regulation arbitrary if it is not based on considerations of health, safety, morals, and the general welfare, or if it is partial. After a court concludes that a zoning regulation is "arbitrary," the next conclusion is that it is unconstitutional and therefore void.

It now becomes apparent that a zoning plan based on the police power must be susceptible of a certain amount of elasticity, or otherwise it will often turn out to be arbitrary in its application to a particular lot of land or a particular building. The field of buildings and their uses is so diverse and adaptations to prevent arbitrariness must be so frequently made, that any iron-clad copper-riveted zoning ordinance will happen to be arbitrary here and there, and to just that extent will be vulnerable when brought to the attention of the court by an aggrieved property owner. It is not within human prescience to employ words and maps in a zoning ordinance so as to provide for every possible contingency. Boundary lines between districts will sometimes run through

a single land ownership. Non-conforming buildings will be found in almost every zoning district, and it would often prove arbitrary to insist on the strict letter of the law for a building next door to some of these non-conforming structures. Building lots are of different sizes and shapes, and sometimes on different grades. Units half completed before the adoption of zoning should sometimes be completed as a harmonious whole. If there is no way of adjusting particular permits for buildings to the actual conditions, instances of arbitrariness are sure to result, and when the property owner who is subjected to this arbitrary treatment brings the instance before the court, the court will protect him by declaring the zoning ordinance unconstitutional and therefore void in that particular. The courts do not declare the entire ordinance void, as it may be arbitrary only in its relation to a particular plot of land. The ordinance as a whole remains valid.

Temporary uses of land must be provided for. It would be unreasonable and arbitrary if certain proper temporary uses of land could not be made. A thousand-and-one instances of arbitrariness may arise in the administration of any zoning ordinance, however carefully prepared, and if there is no method of adjusting these instances there will be a succession of adverse court decisions against the ordinance, and after these court decisions have accumulated for a few years, the zoning ordinance will be rather near the scrap heap.

It is of vital importance, therefore, that the property owner should be afforded some channel by which he can secure a reasonable variance for his building permit so that as to him the application of the zoning ordinance will not be arbitrary. If no such channel is provided by the state enabling act and ordinance, the courts have no alternative but to declare the ordinance arbitrary and void in certain of its applications. This is usually accomplished by the property owner's seeking and obtaining a court order commanding the building commissioner to issue his building permit on the ground that the zoning ordinance is void in this particular instance and in its relation to this particular property, and therefore the building commissioner cannot refuse a permit for a building otherwise lawful. This proceeding is usually by writ of mandamus. In every city where applicants for permits can readily obtain writs of mandamus, the zoning ordinance is doomed. The city might better have saved its time and money and not gone to the trouble of passing a zoning ordinance.

Handling Variances from the Strict Letter of the Ordinance

The handling of variances decides the life or death of a zoning ordinance. How can variances be handled so as to perpetuate the zoning plan? The state enabling act must authorize the municipality to establish an administrative board, usually called the board of appeals or board of adjustment, with power to vary the strict letter of the ordinance in cases of practical difficulty or unnecessary hardship. This board must be given the power to issue or authorize the issue of a variance, that is, a permit varying from the strict letter of the ordinance—that will overcome arbitrariness and that will still carry out the spirit and intent of the zoning law. These variances are not alterations of the ordinance or maps. Only the legislative body of the municipality can alter these. The administrative board can do nothing more than to vary a particular building permit. These variances are made only after public hearings and careful consideration of each particular case. The administrative board is presumed to be composed of experts. Its conclusions are subject to court review. When the court reviews the decision of the administrative board, it can, if necessary, make additional adjustments. Usually, however, the court upholds the decision of the administrative board or sets it aside in whole or part. The applicant or other aggrieved person then has his right of appeal to the higher court. In most of the states this court review is brought about by writs of certiorari.

In every state where zoning ordinances come before the courts on writs of certiorari, zoning is becoming better and better established. In every state where zoning comes before the courts on writs of mandamus it is being gradually overthrown. Why is this? Where there is a board of appeals whose decisions are subject to court review, no applicant can successfully apply to court for a writ of mandamus on grounds of arbitrariness and unconstitutionality, because it is a rule of law that the applicant must first exhaust the remedies which the law gives him. In states having sound zoning enabling acts the applicant can have his remedy before the board of appeals. He can have his day in court before a board of experts having the power to vary. If he does not obtain what he wants from the board of appeals, he must ask for his court review before he can resort to mandamus. If the court of first resort does not satisfy him, he must appeal. Thus it comes about that the courts become helpers in carrying out

the zoning plan wherever the state enabling act authorizes the establishment of boards of appeals. In states where there are no functioning boards of appeals, the courts cannot bring about adjustments to prevent instances of arbitrariness. All that they can do is to declare certain instances arbitrary and declare the ordinance unconstitutional and void in those particulars. In the city of New York whenever an applicant asks the court for a writ of mandamus in order to have the court declare a zoning instance arbitrary, the city attorney asks the court to send the applicant to the board of appeals instead, and the court does it. This is the main reason why in nine years of operation under the zoning plan in this city, no court has uttered a word of disapproval of the zoning regulations.

It has taken American states and cities about ten years to develop the American plan of police power zoning, State legislatures, municipal councils, and the courts have all helped in doing this. As a science it is still far from perfect. City planners from other countries may regard it unfortunate that zoning in this country is court-controlled. They will reflect with satisfaction that in their own countries the regulation of buildings and their uses is unimpeded by the conservatism of courts, and that such regulation is without constraint accomplished by legislative enactments and administrative rulings. Nevertheless, there is much to be said in favor of the American method. The control by the courts has brought about a strict impartiality. It has caused zoning regulations to keep within a definite field of community protection susceptible of proof by expert opinion evidence. This control by the courts has rapidly established principles and procedure. The spread of comprehensive zoning to more than three hundred American municipalities in the brief space of ten years can only be accounted for primarily by the existence of a very pressing need, and secondarily by reason of a wide-spread popular confidence that the courts will not allow the regulations to become unreasonable or confiscatory.

Proposal for Bridging Over Potsdamer Platz, Berlin

POTSDAMER PLATZ is the much-discussed problem of Berlin's traffic system. As the single gateway to the west and the important intersection of the traffic highway of Leipziger-Potsdamer Street with the north-and-south artery of Koniggrätzer Street-Budapester Street, it is obliged to carry a traffic that at times—at the beginning and end of the business day—is liable to become very dangerous. The array of remedies —one-way streets, traffic towers—bears the stamp of a transition state. They are organized necessary expedients, but all the less a natural solution.

In the reproduced plan, Dr. Mahlberg presents a solution of the whole problem through an elevated bridge for pedestrian traffic. In the middle of the Platz rises a platform in the center of which there is a stairway to a central subway station. Around the space under the platform there is a circle of shops, opening only on this space. The bridges are connected with the sidewalks by stairways. Traffic will flow around this island without interfering with pedestrians. At the same time this creates a convenient means of reaching the subway. The idea is certainly attractive, the architectural design interesting.

Upon closer consideration, certain thoughts assert themselves. What the pedestrian has assuredly gained in safety, vehicular traffic has lost in definiteness of control. Moreover, in his plan Dr. Mahlberg already thinks the tramway out of the traffic picture—an assumption that probably will not be fulfilled for a long time.

—*Die Baugilde*, Berlin, Germany, March 30, 1925.

PLAN, BY DR. MAHLBERG, FOR ELEVATING PEDESTRIAN TRAFFIC OVER POTSDAMER PLATZ, BERLIN

International Congress of Cities, Paris, France, Sept. 28-Oct. 2, 1925
See page 190

To Test Taximeters

National Conference on Weights and Measures Adopts Tentative Code of Regulations at Washington Meeting

THE regulation and test of taximeters was one of the principal subjects discussed by the National Conference on Weights and Measures which met at the Bureau of Standards, Washington, D. C., on May 25-28. The Conference is made up of weights and measures officials from all parts of the United States, who meet yearly to consider technical problems that arise in connection with their duties.

The increasing use of taximeters, especially in the smaller cities, has, according to speakers at the Conference, made necessary the development of some uniform method of control of these devices in order to insure that the traveling public receives full measure of transportation. The weights and measures officer, it was pointed out, is not concerned with the fixing of the nominal rates to be charged by taxicab companies, but it is very definitely his duty to see to it that the advertised rates are adhered to in the charges actually made when a cab is hired.

For the past two years the Bureau of Standards of the Department of Commerce has been studying the matter of proper tests to be applied to taximeters, and the result of this study was given to the Conference in a paper by R. W. Smith of the Bureau. In this a detailed testing method was proposed, including instructions relative to bench tests, wheel tests, road tests, inspection, sealing, etc. In addition, the Conference considered and adopted a tentative code of specifications and tolerances for taximeters, setting forth the errors which are to be permitted and specifying the character of indications to be required. Provision is also to be made for suitably lighting the face of a taximeter at night; the rates for which the meter is adjusted are to be shown on the meter, and the taximeter is to be so mounted that the passenger can read its indications while seated in the cab. A broad general provision is included to the effect that "all taximeters and all mechanisms and devices designed to be attached thereto and used in connection therewith shall be of such design and construction and shall be so installed for use that they do not facilitate the perpetration of fraud."

Some of the requirements of the code are designed to apply to all taximeters in use, while other requirements are to be applied only to new equipment. The action of the Conference in adopting this tentative code of regulations has the effect of bringing before the weights and measures officials of the country and the manufacturers and users of taximeters a definite set of requirements relative to these instruments for their consideration and study during the ensuing year. At the Conference which will be held next year it is expected that a final code on this subject will be adopted and recommended by the Conference for official promulgation by state and city weights and measures departments throughout the United States.

The complete code as adopted is obtainable from the Bureau of Standards, Washington, D. C., to which any question relating to these proposed regulations may be addressed.

Bread and Ice Cream

Other action by the National Conference of Weights and Measures, at its recent Washington meeting, included the adoption of the report of its committee on specifications and tolerances in relation to bread.

The tolerances adopted, which are now recommended by the Conference for promulgation by state and city departments of weights and measures, embody a principle entirely new in state and local regulations of this character. Bread is, in general, required to be at least full nominal weight up to the time it passes out of the hands of the wholesale baker. Thereafter a tolerance in deficiency is allowed, and the amount of this tolerance is to be determined by the actual shrinkage of the bread in question, thereby avoiding any discrimination against the unwrapped loaf in which the moisture loss is relatively high, as compared with the wrapped loaf having relatively low moisture loss, and taking full account of the conditions under which the bread has been stored.

Another interesting feature is that all tolerances are to be based on average weights, no individual loaf tolerances being given. The averages are to be based on the weight of not less than five loaves of the same variety, and, if possible, at least ten such loaves are to be used.

The compulsory sale of ice cream by weight

was one of the principal subjects discussed at the meeting. A sharp difference of opinion resulting, a committee was appointed to gather data and make recommendations at the 1926 Conference. Of this committee, the chairman, to whom suggestions may be addressed, is A. W. Schwartz, Assistant Superintendent of Weights and Measures of the State of New Jersey, at Trenton, N. J.

Truck Tanks to Be Regulated

A code developed in cooperation with the Bureau of Standards of the Department of Commerce was adopted by the Conference, to cover specifications and tolerances for tank wagons and trucks when these are used as measures in the selling of petroleum products.

EDITORIAL NOTE.—For a discussion of the general problem of Weights and Measures Supervision, see article by George K. Burgess, Director, Bureau of Standards, THE MUNICIPAL INDEX for 1925, page 38.

A Judicial Appreciation of Town Planning

JUSTICE WHEELER, in stating the opinion of the Connecticut Supreme Court in the case of Windsor v. Whitney (95 Conn. 357; 111 Atl. 354) upholding the validity of the special planning act of the town of Windsor, says:

"A town commission plan such as this Act contemplates is distinctly for the public welfare. Its theory is to lay out streets when and where the public need them, and of adequate width to meet the requirements of the community and of transportation. In such a plan each street will be properly related to every other street. Building lines will be established where the demands of the public require. Adequate space for light and air will be given. Such a plan is wise provision for the future. It betters the health and safety of the community; it betters the transportation facilities; and it adds to the appearance and wholesomeness of the place, and as a consequence it reacts upon the morals and spiritual power of the people who live under such surroundings. The demands of a large city may excuse congestion, but in a small city or a country town there is no excuse for such living conditions. But unless some authority controls and regulates the land development, we may look for too narrow streets, too few or no building lines, and buildings erected, unstable in character, unsuitable in material, and inappropriate in construction. Our large communities all have their examples of the unregulated layout of streets and building lines and buildings; of instances of land development so as to yield the last penny to its promoters regardless of the public welfare; of community eyesores; of streets made over, whole sections changed, because at the beginning no reasonable provision was made for the safety, health or welfare of the community. . . .

"Streets properly located and of suitable width help transportation, add to the safety of travel, furnish better protection against fire, and better light and air to those who live upon the streets. They afford better opportunities for laying, maintaining and inspecting water, sewer, gas and heating pipes, and electric and telephone conduits in the streets. They give opportunity for sidewalks of reasonable width and for shade trees along the highway. Streets of reasonable width add to the value of the land along the street, enhance the general value of land and buildings in the neighborhood and greatly increase the beauty of the neighborhood. These are all facts of universal knowledge.

"The layout of a street or highway by a private person and the regulation of its width, unless determined otherwise by authority, has been a part of our statute law since 1899. . . . Narrow streets in congested industrial centers breed disease. Too many houses crowded upon a lot without sufficient space for light and air menace health. Such a neighborhood affects the morals of its people. The sordid selfishness which would insist upon making the street a mere alley, upon getting houses upon land without regard to reasonable provision for air and light, must be restrained if the public welfare is to be preserved. The state is vitally interested in the health of its citizens, for upon their strength rests its own well-being. It or its agent, the town, must provide fire and police protection to all settled parts. The state and its agent, the town, cannot preserve and protect the rights committed to it if private owners may lay out streets at will and build at will. Uniformity in plan or relation of one street to others will be absent. The practical loss to the community will be large and the loss in neighborhood appearance will be immeasurable.

"The Act does not prohibit the owners from the use of any of their land, except in case they purpose opening streets and selling lots thereon. In which case they lose the use of so much of their land as is contained in the street limits and is in excess of what they purposed laying out as a street, and of so much of the land as the building line prevents their use of for building purposes. If the prohibition of the Act deprived an owner of the use of any part of his land and this was not needed for the public health, safety, or welfare, there would be a plain violation of the constitutional provision. But where it is so needed—and that is the case before us—the subjection to the police power of all property gives the state the right to forbid the use of property in the way desired, save under reasonable conditions promoting the public welfare. The state may regulate the use of property to the point of forbidding thereon certain businesses in themselves lawful, as in the case of slaughter-houses and cemeteries. It may regulate building in the interest of health and fire safety. It may limit the height of buildings in these districts. It may prevent the erection of bill-boards or limit their height. In short, it may regulate any business or the use of any property in the interest of the public health, safety or welfare, provided this be done reasonably. To that extent the public interest is supreme and the private interest must yield."

—From Report by Robert Whitten, City Planning and Zoning Consultant, Cleveland, Ohio, to the Zoning Committee of West Hartford, Conn., 1924.

Water-Waste Survey Helpful to Middletown

Efficiency of Water-Works to Be Materially Increased as Result of Findings

By John A. Korschen
Commissioner of Public Works, Middletown, N. Y.

BELIEVING that the efficiency of the operation of the Middletown water-works could be materially increased, the city made a contract with the Pitometer Company of New York for a complete water-waste survey covering tests for leakage in the supply lines from the reservoirs to the filter plant, tests for leakage in the supply line from the filter plant to the city, tests of the accuracy of the Venturi meters in the filter plant, and a division of the city into districts and a measurement of the flow into each district throughout the 24 hours.

Further investigation was made in these districts for the purpose of locating underground leaks from mains and services and also to locate waste caused by leaking plumbing fixtures. A check was made on large consumers who buy water at a flat rate, to determine the amount of water used. Tests were also made of all meters larger than 3 inches in diameter in place.

The city is supplied through two separate systems—the Highland or high-pressure system, and the Monhagen or low-pressure system. Pitometer measurements of the flow of water into each system were made separately, the Highland system being designated as Section 1, and the Monhagen system as Section 2.

The Highland system, or Section 1, was subdivided into three districts. The average daily consumption in this section was found to be 605,000 gallons, and the minimum night rate of flow was 490,000 gallons, a ratio of night to day rate of 81 per cent. The night rate would seem rather high, but is caused by the fact that the New York State Hospital for the Insane and the New York, Ontario and Western Railway shops are both in this section and use considerable water during the night. In this section one underground leak in a water service was found wasting about 25,000 gallons per day.

The Monhagen system, or Section 2, was divided into seven districts. The average daily consumption in this section was found to be 2,600,000 gallons per day, and the minimum night rate of flow was 1,390,000 gallons, a ratio of night to day rate of 53 per cent. In this section four underground leaks were located. These leaks were wasting about 176,000 gallons of water per day, and none of them were noticeable on the surface.

In both sections, it was found that there was considerable wastage due to leaking plumbing fixtures. These leaks were located by means of a house-to-house inspection, and the property owner was ordered to repair the fixtures within six days.

All the valves in the system were operated and examined and a list was made of the valves and the direction in which they operate.

In both systems there was a total of 3,205,000 gallons average daily consumption, divided as follows:

	Gallons per Day
Unavoidable loss*	120,000
Underground leakage	201,000
Waste in house fixtures	362,000
Use in State Hospital	383,000
Industrial use	531,000
Domestic use and wilful waste	1,608,000

* The unavoidable loss is based on an allowance of 3,000 gallons per day per mile of main. This covers waste of such size and character that it is more economical to permit it to exist than to locate and repair the leak.

Following the complete examination of the system, the Pitometer Company in its detailed report recommended the metering of all services, as well as several changes and additions in the supply mains, more frequent operation of all valves, and the use of nothing smaller than 6-inch pipe on mains on which hydrants are located.

TUBERCULOSIS—A LOSING ENEMY

A generation ago it was tuberculosis which led all causes of death, sickness, poverty; which claimed the breadwinner in the years when his support was most necessary; which took the mother of the family, and left young children to the mercy of circumstances, and relatives; which bent the bones of these children, or started in childhood an infection that flared up later under the strain of the 'teens and the twenties to kill by "galloping consumption" or "lung fever."

Tuberculosis has fallen from first to sixth in the list of causes of death; conservative physicians promise that within fifty years it will cease to be a serious factor in mortality.

—Haven Emerson, M. D.

Forward Steps in Municipal Affairs

Zoning and School Problems Influence Favorable Vote for Annexation

GRAND RAPIDS, MICH.—At a special election held June 23 in the city of Grand Rapids and township of Paris, Kent County, Mich., a portion of Paris township comprising 1,140 acres was annexed to the city of Grand Rapids. Annexation proposals in Michigan require intensive campaigns, because of the law which provides that a majority vote must be secured in the municipality to which the territory is to be annexed and also in the township losing the property and in the particular district affected.

It should be stated that the Paris district was ripe for annexation. During the past five years a tremendous development has taken place in that district and, in the absence of building restrictions, the development did not conform to the splendid residential district in the city adjacent to this property. Therefore, it was properly argued that the inclusion of this property would provide the necessary protection for all concerned under the zoning ordinance of Grand Rapids, which has been in effect about two years.

Another good reason for the annexation of this district was a critical school situation. Not only were the children in the district without proper educational facilities, but the city primary school adjacent has been so overcrowded as to necessitate half-day sessions. The Board of Education is now in position to construct a new school building geographically located to relieve all congestion.

The city of Grand Rapids is particularly pleased over the results because of a comprehensive plan that has been adopted for the development of a boulevard south of the city bordering Plaster Creek. The inclusion of the Paris district will enable the city to exercise better supervision over this particular work.

An interim zoning ordinance to protect property in the Paris district against non-conforming or undesirable use has already been adopted by the City Commission. The city of Grand Rapids, including the new district, now extends for a distance of 7 miles from the northern city limits to the southern, and its area is about 22 square miles.

The Grand Rapids Citizens' League, which was most active in this campaign, is now sponsoring the annexation of a portion of Walker township lying west of the city, totaling 960 acres. Initiative petitions will place this proposal on the ballot next fall.

RUSSELL F. GRIFFEN,
Secretary, Grand Rapids Citizens' League.

A Gift of Traffic Control Devices

JOLIET, ILL.—Through the generous and public-spirited action of one of our citizens, William M. Buchanan, this city was recently presented with traffic control signaling devices for installation on five of its busiest corners.

The apparatus, which is a product of the General Electric Company, consists of three towers, one of which is shown in the accompanying illustration, and two sets of four brackets each for use at street intersections where street-car clearance will not permit the erection of towers. The brackets are attached one at each of the four corners of the intersection, and the signals, which are of the same type as those on the towers, extend out over the street and are clearly visible for the entire length of the block. Each device is equipped with a synchronous motor operating three mercury contact tubes on a cam-shaft timed to forty

ONE OF THE NEW TRAFFIC CONTROL SIGNALING DEVICES IN JOLIET, ILL.

seconds each way, with five seconds on traffic change.

The citizens of Joliet are most appreciative of this splendid gift, which has made possible a more efficient handling of the traffic problem in this city.

D. H. LILLEY,
Acting Secretary, Joliet Association of Commerce.

A Fine New Municipal Group

CHARLOTTE, N. C.—This city has under construction, to be completed within a few weeks, what will be one of the finest municipal groups in America. The group includes four buildings—city hall, headquarters fire-station, central police station and jail, and health and welfare building—which, with spacious lawns and driveways, will occupy an entire block, three squares from the center of the city. The cost will be about $700,000 for the buildings and $300,000 for the land.

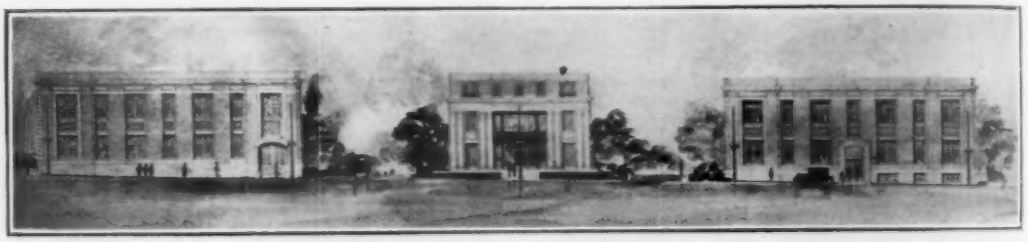
The city hall, the largest of the buildings in the new municipal group, is placed in the center of the square. The new fire-station is on one corner back of the city hall, and the police station on the other. Between these two structures is the health and welfare building.

The city hall building has three stories and a basement. The first floor will house the revenue and accounting departments; on the second floor will be the offices of the three city commissioners, a council chamber, the city clerk's office, and a room for veterans of United States wars. The third floor will be occupied by the school department, the building inspector, electrical, plumbing and sanitary inspectors, and the city engineer and surveyors.

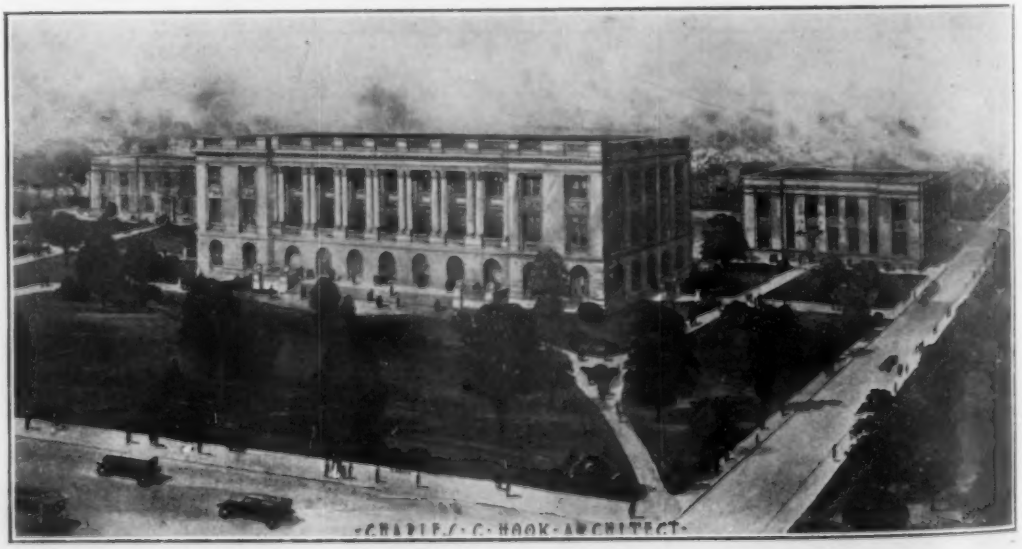
The entrance esplanade is the entire width of the central portion of the building, flanked on each side by ornamental posts and balustrade. Not only is this an outstanding architectural feature, but it will be used for public speaking. The park space in front of this building can accommodate more than 10,000 persons. Elaborate rest-room facilities for both sexes of both white and colored races are provided in this central building.

The headquarters fire-station will provide exceptional facilities for a modern fire department. The ground floor is so arranged that all the equipment can leave the building at the same time. Directly over the apparatus room will be sleeping quarters for 40 firemen, with shower-baths and a drying-room for wet clothes. At the rear of the apparatus room there is an elaborate repair shop. There are several storage rooms and a telephone room.

The new police station and jail are models of police equipment. On the ground floor are offices for the police chief, the assistant chief, room for



REAR SIDE OF CHARLOTTE'S NEW MUNICIPAL SQUARE
Showing the fire headquarters station, the health and welfare building, and the police station and jail



FRONT VIEW OF CHARLOTTE'S NEW MUNICIPAL GROUP
The City Hall is in the center of the square

detectives, and recreation, sitting, and locker rooms for the police officers. There is a large garage and repair shop in the rear. The city recorder's court room and jail are located on the second floor of this building. The court room itself will seat 200 persons, and there are special rooms for attorneys and prisoners. The jail is light, well ventilated, and equipped with the latest type of cells, toilet facilities, and shower-baths. In the basement of this building there is a large room that may be used for an armory for a military company, should the occasion arise.

In the fourth building in the new group the first two floors will be used by the health department offices and laboratories. The third floor will be used by the juvenile welfare department, with detention rooms for juvenile prisoners with separate arrangements for both sexes of both races.

All the buildings in the group are of fire-proof construction. The main building has a steel frame, and the other three have brick walls with steel and concrete interior supports. The central heating plant is located in the basement of the city hall. It provides a battery of three high-pressure steam boilers with underground ducts running to the other buildings for steam service.

Charles C. Hook, of Charlotte, is architect for the new municipal group. The J. A. Jones Construction Company, of Charlotte, has the general building contract.

WALTER S. ADAMS.

FOUR-WAY SIGNALS ON MAIN STREET, BUTLER

Signal Lights Handle Traffic Effectively

BUTLER, PA.—The automatic traffic signaling system which has been in operation in this city since the spring of 1924 has proved so satisfactory that we have just added three new signals to the existing five-unit installation. This signaling system, manufactured by the Essco Manufacturing Company, was chosen after a thirty-day trial of three types of apparatus, and its installation has not only been of great assistance to the traveling public but has been an economical measure for the city.

The original five units, erected on Main Street, are operated from one controller in the City Building. One extra unit, operated from a separate point, has now been installed on Main Street, and two other units have been placed in another section of the city, both operated from one controller located in a fire-station.

Main Street is a part of the principal thoroughfare running from Pittsburgh northward to Erie and the lake district, and thus has to handle a heavy flow of traffic, particularly during the summer months. Since the street is narrow and has a single-track street-car line, it was deemed advisable to suspend the signals from cables over the center of the street rather than to further crowd the lines of cars by the use of pedestals. In addition to the traffic lights, we have installed at each unit an auxiliary red light, operated from the central fire-station, which serves as a signal for all traffic to stop when fire apparatus is approaching.

It has been interesting to note that the public in general shows as much respect for the automatic signals as for a traffic officer.

FRED M. HARPER,
City Engineer.

Homes—Not Orphanages—for Destitute Normal Children

AT a conference on child welfare recently held in New York under the auspices of the Child Welfare Committee of America, special emphasis was given to the fact that the well-being of destitute children is better secured in suitable family homes than in institutions. A resolution was adopted advocating "adequate appropriations to provide for every normal destitute child in its own home or in the home of a near relative, or in some other suitable home where it is wanted;

"And be it further resolved, that we rejoice in the growing tendency to reduce the number of children in institutions and we advocate a campaign of education to discourage the building of new institutions and orphanages for the care of normal children, and further to prepare the way for the final adaptation of existing institutions to new purposes, such as the care of feeble-minded, crippled, cardiac children, or other children in need of specialized institutional care."

In this connection it is interesting to read an article by Dr. Julius Levy, Director, Child Hygiene Division, Newark, N. J., in the June issue of the Monthly Bulletin of the Newark Department of Health, on "Newark's System for the Protection of Boarded-out Infants and Children." Only one or two children are boarded in any private home, under license, and this policy of individualization is having fine results, as explained in the article.

The Federal City Planning Commission

To the Editor of THE AMERICAN CITY:

Mr. Shurtleff's letter in your July issue on "Guiding the Growth of the City of Washington" is of much interest to all who have been working to correct the conditions to which he refers. A brief résumé of the recent efforts and of the present situation may be helpful in making the next steps more effective.

First: The American Civic Association launched, in Washington, a Committee of 100 on the Federal City. This committee divided into ten subcommittees, each of which studied and reported on some phase of the Capital's development—its parks, playgrounds, schools, highways, water-fronts, buildings, zoning, etc. It made many recommendations, but one specially urgent—the organization of a park commission to insure the systematic, adequate, and timely acquisition of park lands. The Civic Association then organized corresponding Committees on the Federal City all over the United States, and these groups cooperated in obtaining through their representatives in Congress passage of the desired Park Commission Act.

Second: The American Institute of Architects, believing that most of the errors of commission and omission in the development of Washington have been due to the lack of a supervisory planning group to coordinate the work of the many bodies among whom responsibility has been divided, appointed a Committee on the Plan of Washington and Environs, having a membership of 55, with one member in each chapter of the Institute, to (a) keep the Institute membership informed on the Washington situation and (b) to work for the authorization of a city planning commission on which the planning professions would be represented.

Third: The Federal City Committee and the American Institute of Architects committee cooperated in supporting legislation to provide the new park commission with adequate funds for its first year and in obtaining carefully considered new legislation establishing the city planning commission. The American Society of Landscape Architects, the American City Planning Institute, the American Engineering Council, the American Society of Civil Engineers, and the Garden Club of America were invited to cooperate and appointed special committees.

Fourth: Corresponding bills authorizing the establishment of this commission were introduced in the Senate and House of Representatives by Senator King of Utah and Representative Zihlman of Maryland. The bills were revised at the instance of the cooperating civic and professional committees and favorably reported by both Senate and House District Committees. The proposed Federal City Planning Commission was projected to cover every phase of the physical development of the city proper and its environs. Its personnel included "an architect, a landscape architect, an engineer, and two others, of *distinguished experience in city planning*" as well as representatives of the various existing executive commissions, *all serving without compensation*, but with a fund of $50,000 for a technical staff. The bill never came to a vote in either Senate or House, as it was lost in the closing legislative jam. It will be introduced again at the next session.

Fifth: The National Capital Park Commission has organized an informal committee whose membership includes four representatives of the Park Commission or Office of Public Buildings and Parks, two of the District Commissioners, one of the National Park Service, and one of the American Civic Association. This getting together of even a few of the various detached groups is an encouraging thought, but it is not the solution of the problem and should not in any sense be accepted as more than an expedient pending the accomplishment of a permanent planning commission. Without any thought of disparagement, it is not reasonable to suppose that the existing salaried personnel would equal in calibre, breadth of vision, experience, and forcefulness the strength of the supervising technical members of the proposed Planning Commission, as outlined in the preceding paragraph. This represents the best that the technical men of the country can devise to place at the service of the nation the brains of the planning professions. The park committee, on the other hand, while undoubtedly helpful so far as it has the ability or power to go, in its entire offering is but a part of the planning commission project. Too much money has already been wasted by makeshift planning, too many mistakes have been made in the past, too many opportunities lost.

The capital city belongs to the nation at large and its planning should be in scale

with the nation rather than be the prerogative of any one bureau. The efforts of the Park Commission committee should be supported, but with the understanding that it represent only another step toward the objective of the planning professions.

* * * * *

In the vernacular, Washington has the makings of the most beautiful capital city, but this preeminence is not yet assured. Its possibilities were apparent to the Father of His Country and its natural setting includes "the rocks and rills, the woods and templed hills" which are commemorated in the national anthem. It was planned and started as no other national capital had been—with its peculiar function in mind from the beginning. It is inconceivable that the American people will allow their pride in what has already been accomplished to relapse into an inertia preventing the full realization of the possibilities of their Federal City.

Now is the time to insure the future greatness of the Capital. The planning professions and civic groups are definitely organized to work for the enabling legislation and, when the opportunity for service is obtained, to draft the services of their ablest representatives. It should be a privilege and an honor to every Chamber of Commerce, Board of Trade and professional or business group to support the legislation which will make it possible to place the development of the nation's Capital in the custody of the nation's most distinguished planners,—who will themselves be fully requited by the opportunity of completing the work begun by Washington, Jefferson and L'Enfant.

HORACE W. PEASLEE,
Chairman, American Institute of Architects' Committee on Plan of Washington and Environs.

Baltimore's War Memorial and Its Setting

THE ultimate setting of Baltimore's recently dedicated War Memorial is shown in the accompanying perspective view prepared by Laurence Hall Fowler, the architect who designed the Memorial. The view is taken facing the Memorial and showing the eastern half of the Memorial Square. The plan for the Square is simple, the controlling idea being to arrange the masses so as to tie the City Hall to the Memorial and to form a suitable setting for both these buildings by making the new street façades uniformly high and similar in material and design.

The plan calls for two levels. The upper one consists of two broad, tree-lined walks, one on the north and the other on the south side of the Square, both at the level of the existing streets. The lower level includes all the area between the walks and is paved with large blocks in two colors. The vistas through the tree-lined walks of the upper level lead from the end pavilions of the City Hall to the large pedestals now in place at the ends of the War Memorial terrace. Broad steps leading up from the lower level to the streets in front of the Memorial and the City Hall convert these streets into terraces in front of their respective buildings. In the center of the steps leading to the Memorial a decorative monument is shown. In front of the City Hall the plan calls for a rostrum for public speaking and band concerts, with a flagpole with ornamental bases at each side. Except for lighting standards, the central paved area is left unobstructed, so as to facilitate the assembly and dispersal of large crowds.

American and Canadian Committees to Aid International Union of Cities

Groups Appointed to Cooperate in Connection with the International Congress of Cities and Local Authorities, to Be Held in Paris, September 28-October 4, 1925

AT the Town Hall Club, New York, on July 10, a luncheon conference was held with Senator Emile Vinck, of Belgium, Secretary-General and Director of the International Union of Cities, who had come to the United States for a brief visit in behalf of the International Congress of Cities and Local Authorities, to meet, as previously announced in THE AMERICAN CITY, in Paris, September 28-October 4 next. Much interest was expressed in the plans for the Paris meeting, and the importance of adequate representation of American municipalities was emphasized. In order to bring about as large an attendance as possible from the United States, the meeting authorized the appointment of a cooperating committee, the personnel of which is as follows:

COMMITTEE OF THIRTY TO COOPERATE WITH THE INTERNATIONAL UNION OF CITIES

Louis Brownlow, City Manager, Knoxville, Tenn.
Harold S. Buttenheim (Chairman), Editor, The American City Magazine, New York.
William P. Capes, Secretary, New York State Conference of Mayors and Other Municipal Officials, Albany, N. Y.
Stephen Child, Fellow, American Society of Landscape Architects, Washington, D. C.
E. L. Dalton, President, American Society for Municipal Improvements, Dallas, Tex.
Frederic A. Delano, President, American Civic Association, Washington, D. C.; Chairman, Regional Plan of New York and Its Environs, New York.
Wililam E. Dever, Mayor, Chicago, Ill.
Harold W. Dodds, Secretary, National Municipal League, New York, N. Y.
George B. Ford, Past President, American City Planning Institute, New York.
George W. Fuller, Consulting Engineer, New York; Past President, American Water Works Association.
Fred H. Gates, Secretary, League of Cities of the Third Class in Pennsylvania, Wilkes-Barre, Pa.
John M. Gries, Chief, Division of Building and Housing, U. S. Department of Commerce, Washington, D. C.
Luther Gulick, Director, National Institute of Public Administration, Bureau of Municipal Research, New York.
Allen Hazen, Consulting Engineer, New York; Member American Society of Civil Engineers.
W. R. Hopkins, City Manager, Cleveland, Ohio.
John Ihlder, Director, Civic Development Department, Chamber of Commerce of the United States, Washington, D. C.
J. Herman Kniseley, Director of Municipalities, Department of Internal Affairs, Harrisburg, Pa.
C. Wellington Koiner, President, International City Managers' Association, Pasadena, Calif.
Ford H. McGregor, Secretary, League of Wisconsin Municipalities, Madison, Wis.
D. E. McLendon, President, City Commission, Birmingham, Ala.
Dr. Frank Monaghan, Commissioner of Health, New York City.
William B. Munro, Professor of Municipal Government, Harvard University, Cambridge, Mass.
John Nolen, President, National Conference on City Planning, Cambridge, Mass.
Sedley H. Phinney, Secretary, New Jersey State League of Municipalities, Trenton, N. J.
Thomas H. Reed, Director, Bureau of Government, University of Michigan, Ann Arbor, Mich.
L. S. Rowe, Director, Pan American Union, Washington, D. C.
John G. Stutz, Secretary, International City Managers' Association, Lawrence, Kans.
Lent D. Upson, Chairman, Governmental Research Conference, Detroit, Mich.
Frank B. Williams, Author of "The Law of City Planning and Zoning," New York.
W. F. Willoughby, Director, Institute for Governmental Research, Washington, D. C.

In Canada also a Committee of Thirty has been organized, the personnel of which follows:

CANADIAN COMMITTEE OF THIRTY TO COOPERATE WITH THE INTERNATIONAL UNION OF CITIES

Samuel Baker, City Clerk; Secretary, Union of Canadian Municipalities, London, Ont.
John Balharrie, Mayor, Ottawa, Ont.
J. N. Bayne, Local Government Board, Regina, Sask.
Joseph Beaubien, Mayor, Outremont, Que.
K. A. Blatchford, Mayor, Edmonton, Alta.
H. Bragg, Managing Editor, *Municipal Review of Canada*, Montreal, Que.
Dr. A. H. Brittain, Secretary, Ontario Municipal Association, Toronto, Ont.
J. A. A. Brodeur, K. C., Chairman Executive Committee, Montreal, Que.
Louis Cousineau, C. R., Mayor, Hull, Que.
A. O. Dawson, President, Board of Trade, Montreal, Que.
Charles Duquette, Mayor, Montreal, Que.
Joseph Foster, Mayor, Toronto, Ont.
W. D. L. Hardie, M.E.I.C., Mayor, Lethbridge, Alta.
J. P. Hynes, Secretary, Town Planning Institute, Toronto, Ont.
Paul Joubert, President, La Chambre de Commerce, Montreal, Que.
T. W. Jutten, Mayor, Hamilton, Ont.
J. B. Kenny, K. C., Mayor, Halifax, N. S.
D. D. McDonald, Secretary, Provincial Municipal Union, Dauphin, Man.
John McKenna, Mayor, Charlottetown, P.E.I.
Frank Mitchell, Mayor, Windsor, Ont.
J. C. Pendray, Mayor, Victoria, B. C.
R. L. Phillips, Mayor, Fredericton, N. B.
Frank H. Plant, Controller; President, Union of Canadian Municipalities, Ottawa, Ont.
Frank Potts, Mayor, St. John, N. B.
R. Prieur, Secretary, L'Union des Municipaltés de la Province de Quebec, Montreal, Que.
Arthur Roberts, K. C., Secretary, Union of Nova Scotia Municipalities, Bridgewater, N. S.
F. W. Stewart, President, City Improvement League, Montreal, Que.
L. Taylor, Mayor, Vancouver, B. C.
Col. R. H. Webb, Mayor, Winnipeg, Man.
Geo. W. Wenige, Mayor, London, Ont.

It is expected that a group of delegates from the United States will sail together on the "Majestic," leaving New York on September 12, and visting various European cities in advance of the Paris meeting. Further information regarding this tour and the Paris conference can be secured from the office of THE AMERICAN CITY, 443 Fourth Avenue, New York, which is serving as New York headquarters for the International Union of Cities.

Most of the Canadian delegation will probably sail together on the "Doric" from Montreal on September 12, and return via Italy and New York. For information regarding the Canadian tour, address R. Prieur, Secretary, Union of Municipalities of the Province of Quebec, 120 St. James Street, Montreal.

Chamber of Commerce Activities in Public Affairs

An Endowment for Kewanee

KEWANEE, ILL.—In addition to having made possible in recent years the creation of a park system remarkable for a city the size of Kewanee, the President of our Park Board, E. E. Baker, has further expressed his love for his home town and his fellow citizens by the establishment a few months ago of an endowment of $400,000, the income from which is permanently to be used for the benefit of the community.

The disbursement of this fund, which will amount to more than $20,000 annually, has been placed in the hands of a corporation known as Emerit E. Baker, Inc., formed for that purpose. In the charter it is specified that the funds shall be used solely for the benefit of Kewanee, particularly to establish, build, improve, and maintain parks, public grounds, public buildings, public baths, and playgrounds, help crippled children, and render financial aid to worthy young people seeking an education. It is further stated that in case of great national calamities the Board of Directors, at its discretion, may make contributions for relief. Thus, at the time of the cyclone catastrophe early this year, the corporation, which had just been organized, immediately presented a check for a considerable sum to the Red Cross.

The inception of our park program dates back to the year 1919, when Mr. Baker offered a donation of $50,000 for the purchase and improvement of land for park purposes, provided a Park District be organized. This announcement was made shortly after the formation of the Kewanee Chamber of Commerce, and that organization made the establishment of the Park District—a distinct and separate taxing body from the municipality—one of its first tasks. The creation of such a district, when put before the voters, was approved by an overwhelming majority. A Park Board was then elected, with the man whose generosity had made the work possible, serving as President. During the following year Northeast Park, an 18-acre proj-

A PART OF BAKER PARK, KEWANEE, ILL., OPENED TO THE PUBLIC ON JULY 4, 1925
At the left are shown six holes of the nine-hole golf course; in the immediate foreground, one of the smaller artificial lagoons and one of the many picnic grounds. Farther back are the walks and drives leading almost to the business district. The park is over two miles long

SWIMMING POOL AND BATH-HOUSE AT NORTHEAST PARK, KEWANEE
As many as a thousand bathers have been in this pool at one time

ect, was built; the second year saw the development of Chautauqua Park, another 18-acre plot in a different section of the city; and during the third year of its existence the Board reconstructed and equipped as a playground for young children a small, centrally located tract of land known as Liberty Park, in addition to installing a fine swimming pool and bath-house in Northeast Park.

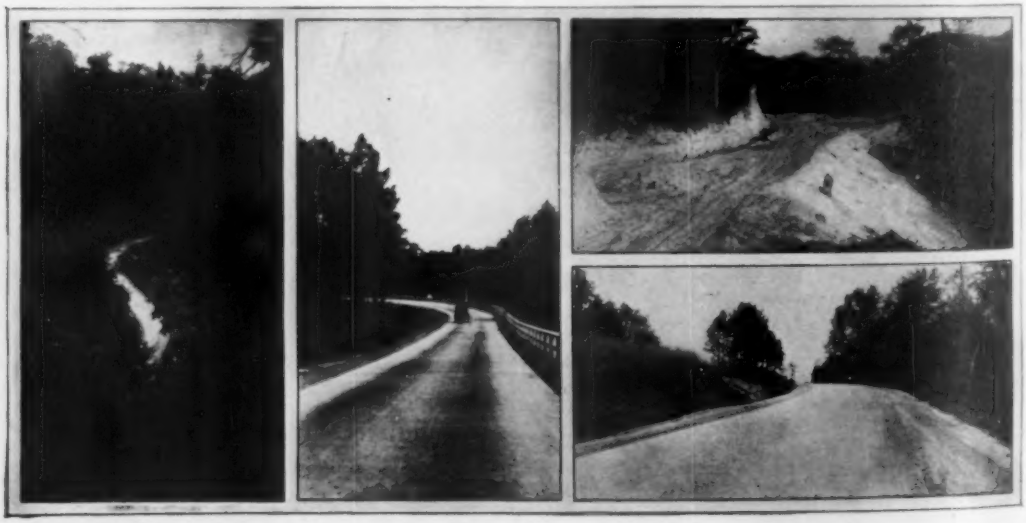
In the fall of last year our largest project, the construction of Baker Park, covering over 100 acres, was started, the work being handled by the Chicago Landscape Company, which had previously completed Chautauqua Park and the installation of the pool and bath-house at Northeast Park. This latest addition to our park system affords our citizens the benefits of a nine-hole golf course with a club-house attached, two artificial lakes, gun club grounds, several picnic grounds, and several miles of improved roads and walks. When planning this ambitious program of recreation facilities for Baker Park, the Board found that the expected cost of well over $72,000 would so drain its resources as to make it necessary to postpone some of the improvements until a future time. But the President of the Board again showed his splendid spirit by making a further contribution of $35,000, which made possible the completion of the work.

On July Fourth the municipal golf course at Baker Park was thrown open to the public. The Park Board was very agreeably surprised at the interest the citizens in general have taken in this game. The Country Club was holding a big golf match on the Fourth, and all the regular golf players were there, but nevertheless over forty people played on the new course the first day. This indicates that there will soon be a new group of golf players in this community.

G. ROBERT GALLAWAY,
General Secretary, Kewanee Chamber of Commerce.

A Road-Paving Race

GREENVILLE, S. C.—Under the auspices of the Good Roads Bureau of the Greenville Chamber of Commerce, a road-paving race is being held between the mountain resort of Hendersonville, N. C., and the bustling city of Greenville, S. C.



TWO PAIRS OF "BEFORE AND AFTER" VIEWS TAKEN AFTER THE GREENVILLE-HENDERSONVILLE HARD-SURFACING RACE GOT UNDER WAY

and the event is attracting attention not only along the intervening route but in those regions to the south from which many tourists come each summer to spend vacations in the higher altitudes.

From Greenville to Hendersonville, along the main highway, is a distance of 43 miles. The North Carolina-South Carolina boundary city line lies 31 miles from Greenville and 12 miles from Hendersonville. The South Carolina city, with nearly 3 miles to pave to Hendersonville's 1, has so far paved 5 miles of its end of the highway, while the North Carolina city has hard-surfaced 7 of the 12 miles separating it from the state boundary. Since Greenville has yet to put down five times the amount of paving that Hendersonville must lay in order to reach the common goal, those interested are beginning to feel that the South Carolina city will be the loser.

Citizens of the city that wins the race to the state boundary will feast with the losers, and the latter will pay the bill. The picnic will be spread somewhere along the highway, which crosses one of the highest mountain ridges in the east and is noted for its scenic beauty.

WILLIAM R. TIMMONS,
Executive Secretary, Greenville Chamber of Commerce.

To Indicate—Not to Dictate

SPEAKING on the "Relations of Chambers of Commerce to City Governments," at the recent annual convention of the Connecticut Chamber of Commerce at Hartford, Arthur W. Forbes, President of the New Bedford Board of Trade, emphasized a phase of the problem often overlooked by users of the slogan, so often heard in recent years, "Less Government in Business and More Business in Government." Said Mr. Forbes in part:

"Have we not allowed ourselves to use this slogan in a rather superior manner as it related to government, and felt that government was one thing that, thank God, we were not mixed up in; that business, being on a much higher plane than government, should only be interjected in government in some rather vague manner along the line of typhoid serum, so that when a business problem appeared before a government or government department, said government or government department would automatically register the correct mental process as fixed in the mind of business, without any effort on the part of business? . . . .

"City officials elected by the people following a political campaign during which projects or policies are proposed and opposed, have just reason many times to feel that the results of the election have revealed public opinion regarding those questions in controversy, but those questions of controversy usually constitute only a small number of the total that must be considered by the governing bodies during the year.

"The chamber or board of commerce is an agency or instrument through which the business and civic interests of the community may give expression regarding many important and varied questions that are constantly coming before our governing bodies for action, that were not campaign issues. This can be done by a referendum of its membership and by investigation and research work by committees.

"In doing this the members of the organization are not only taking advantage of a privilege which is rightly theirs, but they are also performing a duty and rendering a public service by giving to the city officials the benefit of the knowledge and judgment of its best citizens acquired without racial, sectarian, or political influences, and usually after a careful investigation and study by research bureaus and competent committees. . . .

"Now as to application, and by that I mean the bringing together of the chamber and the government, smoothly and effectively.

"First, that the chamber through its officers, members and committees bring to the attention of government that it is interested in government. So arrange that the chief executive of the city is a member of the board of directors or managers of the chamber by virtue of his office. See that the head of each department receives from the chamber from time to time, from the records of the chamber or from elsewhere, facts and figures upon matters of interest pertaining to his department, absolutely without any comment. Do this simply as a friendly act.

"That any committee appointed to confer with the city government be made up of men selected with care for the particular subject; a committee that will not only show knowledge of what they present, but inspire respect for their organization, and create a spirit of good-will. Never send a boy. This at present is a man's job.

"We should not under any consideration be willing to give an opinion or decision on a public matter in which the government is interested without being fully aware of the facts of the case, and reasonably sure that the conclusion as drawn from the facts represents the feeling of the chamber. . . . .

"Never send a secretary or paid employee to an official with any sort of demand or appeal. It is most proper that the secretaries or paid heads of departments should be on cordial terms with city officials. He or they should at all times consult, seek advice from, and give assistance to, public officials at every good opportunity, but when it is necessary to appeal or demand, this should be done only by the unpaid officials and carefully picked committees.

"If we work along these lines, selfishness and petty bickering will disappear, to be succeeded by the gospel of cooperation. We shall find ourselves working to make the home town just what it should be, and, like St. Paul of old, proud of our bonds—the bonds of faith and loyalty that bind us to our own community and to each other. . . .

"Do not fail to make clear to all, and live up to it, that the function of a board or chamber of commerce in its relations with government is *to indicate, but not to dictate.*

"The spirit of this thought, if carefully followed out, will do more to bring about this much-desired condition which we have discussed here to-day than anything else I can think of, and the new slogan will be "Business Is with Government and Government Is with Business."

How Chambers of Commerce Can Help Solve the Negro Problem

By Leo M. Favrot
Field Agent, General Educational Board

The Need of Intellectual Contact

THE South has only recently begun to realize that it can never attain its highest development while the interests and welfare of 40 per cent of its population are neglected. We southern members of the white race too frequently think of our community life in terms of the white population alone. It is strange that we should forget the old adage that a chain is no stronger than its weakest link, and that link in the average southern community is likely to be the Negro population or the community influences derived from it.

In planning to strengthen this link there is tremendous value in interracial cooperation between leading white and Negro citizens. There is little opportunity in the South for the leaders of the colored race to come in contact with the leaders of the white race. Southern white people do not come in frequent contact with Negro physicians, dentists, merchants, bankers, educators, or ministers, although the number of trained and educated Negroes in southern communities is increasing every day. We come to think of the Negro then entirely in terms of the great masses on the lowest rung of the ladder and seldom of that intelligent and capable minority which furnishes the guidance and leadership of the masses. An interracial committee made up of leading members of the white group in a city, cooperating with leading members of the colored group, would furnish the opportunities for contact which are now lacking and would give the white leaders a chance to learn what intelligent, capable colored men are thinking about. More important than this, it would give to thoughtful, intelligent colored men who live in the South an opportunity to express themselves on the desires and needs of the members of their own group.

In my experience of thirteen years as a worker among Negroes, I find a distinct desire on the part of many of their leaders to discuss with white men plans for racial betterment. They feel that their sphere of activity as leaders is limited by the fact that they do not have ample opportunity to get before the proper authorities many of the problems that beset the Negroes who live in cities and towns. Some are timid about appearing before white people, because of their feeling that the white people will have no desire to talk with them. Others not at all timid in coming before white groups sometimes represent their own interests rather than the interests of their race. A carefully selected committee of broad-gaged and interested members of both races to consider problems having an interracial aspect should function so as to help chambers of commerce to solve many of the most vexing problems of city life in the South.

Constructive Work in Race Relations

In preparation for an address delivered on June 16 before the Southern Commercial Secretaries Association, of which this article is a part, Mr. Favrot made an effort to determine the extent to which there are committees of white people connected with chambers of commerce for cooperation with committees representing the civic and commercial interests of the colored people. Seventy-four chamber of commerce secretaries replied to his letter. Abstracts of the principal activities in interracial cooperation reported are here presented. Their very success emphasizes the great need for extension of this patriotic work.

The Results of an Inquiry into Interracial Cooperation

With the discussion of my topic in mind, I sent out recently a letter to 167 secretaries of chambers of commerce containing this query: "To what extent are there, at this time, committees of white people connected with chambers of commerce cooperating with committees representing the civic and commercial interests of the colored people? Will you kindly describe the activities and membership of such committees?"

Seventy-four replies were received to the letter. From these replies it is learned that 78 per cent of these chambers of commerce have no committee of any kind and no regular means provided for cooperation. Of the remaining 22 per cent, embracing fifteen chambers of commerce, eleven provide for organized cooperation, while four mention Negro men's business leagues or chambers of commerce that are usually the outgrowth of the white organization and generally in close contact with it. In not one of the seventy-four replies received to this letter of inquiry was there evidence of objection of any kind to some plan for interracial cooperation in the chamber of commerce program for the betterment of southern cities. In many of the replies reporting no interracial committees, there was interest expressed at having this topic discussed at this meeting. Several letters contained definite suggestions regarding means of bringing about a greater amount of interracial cooperation, usually based on definite accomplishments.

A Northern as Well as Southern Problem

The pressing nature of the problem of interracial cooperation is evidenced by the editorial comment on a recent race riot in Detroit, published in The Detroiter for June 29—the organ of the Detroit Board of Commerce:

"It must be admitted that the Negroes in Detroit are being oppressed. You may criticize the neighborhoods in which they live—but you don't let them get out of those neighborhoods, and you would be surprised to learn that they are paying excessive rents to white men for the privilege of living in squalor. Perhaps their neighborhoods should be well defined—but they should also be respectable.

"If the existing conditions continue to prevail, Detroit is headed toward race riots that will include fatalities. That will put our town in the uncomfortable position occupied by Chicago and other big cities which have suffered such disgrace."

The fact that so many chambers of commerce do not assume responsibility for interracial cooperation must not be accepted as evidence that there is no such cooperation. Standing committees organized under the auspices of the Southern Commission on Interracial Relations in Atlanta, Ga., are reported in several letters. This Commission, by the way, is excellently organized to render all assistance necessary in organizing interracial cooperation, and will delight in rendering all assistance possible. It may be addressed at 409 Palmer Building. Six chambers of commerce have reported that special committees have acted on occasion when the situation seemed to demand their appointment. One city reports interracial contacts under the auspices of the Y. M. C. A., one under the State Conference of Social Workers, and one under the Ministers' Union. One secretary reports that three colleges in his town serve as a means of bringing about interracial cooperation.

Where special committees of some permanence are appointed by chambers of commerce on interracial work, mention is made of the fact that these committes are made up of prominent business men. Some committees report five such men, and some report seven. The committees of Negroes are sometimes permanent committees representing colored ministers or a colored civic league, and sometimes the colored representatives appear from time to time before the white committee to represent various needs of their own group.

Many special activities have been reported from southern towns and cities.

Alabama

Birmingham. — The Negro Business Men's League was organized by the white Secretary of the Chamber of Commerce.

Mobile.—The Chamber of Commerce was active in working to secure a playground from the Harmon Fund, and much interracial work has been accomplished through social agencies connected with the Alabama Conference of Social Work.

Montgomery. — A plan of interracial cooperation has been formulated by the white Ministers' Union. Constant effort is being made through a prominent colored business man, Victor Tulane, to promote higher business ethics among Negro business men. The Secretary of the Chamber of Commerce also reports a visit to Tuskegee Institute to invite that institution to arrange for an exhibition for the Southern Exposition in New York. Dr. George W. Carver, the celebrated chemist, presided over the Tuskegee exhibit, and there is little doubt that the excellence of this exhibit helped Alabama to win the championship of the Southern States at the Exposition.

Selma.—The Chamber of Commerce has initiated a program of self-help on the farms of Dallas County. It is providing a special farm demonstration agent to work among Negroes and offering a series of nine cash prizes of $100 each to the Negro farmers who will make the best records in producing various crops and building up the best-balanced farms of the community.

Arkansas

Blytheville.—The Chamber of Commerce meets committees of Negroes, supports their annual com-

munity and county affairs, gives free Christmas trees, and organizes play and social features.

Fort Smith.—The Civic Committee of the Chamber of Commerce handles interracial problems, but local Negro committees take an active part in promoting programs of a civic nature.

Hot Springs.—The Negro Business Men's League looks to the white Chamber for guidance in its activities.

Florida

Orange County.—A Negro Business Men's League of 100 business and professional men is in close contact with the Secretaries of the County Chamber of Commerce and the City Chamber of Commerce of Orlando, who report cooperation and mutual understanding.

Tampa.—The Secretary reports special committees appointed from time to time to help organize a Negro Urban League, to secure a good location for Negro real estate development, and to assist in getting parks and schools.

Georgia

Albany.—A special committee of the white Chamber was appointed to raise money for the purpose of entertaining the Negro Grand Lodge of the Knights of Pythias.

Augusta.—The Interracial Committee sponsored the Negro Trade Week, and the white people made arrangements for a parade, a half-holiday, speakers, judges of floats, and police protection.

Macon.—The Chamber of Commerce is working on a plan to have an auxiliary of several hundred Negroes, and the chairman of this auxiliary will probably sit with the Board when matters relating to Negroes are being discussed.

Rome.—The commercial organization has established a health nurse and a home demonstration agent, and assisted in establishing a Negro brass band and in improving the Negro school.

Louisiana

Several interracial committees have been organized.

Baton Rouge.—The committee is centering its attention on a public recreation park and on public library facilities for its colored population.

New Orleans.—The Race Relations Committee of the Civic Bureau of New Orleans organized a colored Civic League and meets with a committee of this League to discuss interracial problems. The matters of greatest interest are more parks and playgrounds, better streets with more lights, and better health conditions. Some work has been done towards trying to establish a trade school for Negroes, and efforts have been made to bring about a housing survey.

Shreveport.—The Committee assisted in improving Negro homes and bettering conditions in schools, and are working on a plan for a public playground.

Mississippi

Laurel.—A special committee is at work stimulating civic pride and better citizenship, and lending its efforts towards the building and support of a vocational school for colored people.

North Carolina

Durham.—The Interracial Relations Committee was instrumental in having streets in the colored district paved, in assisting the Board of Health in engaging a dentist for work in colored schools, in securing a nurse to work among colored people in tuberculosis cases, in having sewerage and police protection extended to colored districts, in arranging for accommodations to give colored people the opportunity to hear distinguished speakers and musicians coming to Durham, and in improving railroad accommodations. The Committee also promptly investigated and proved untrue a rumor to the effect that the colored people were going through military drill every day and accumulating arms and ammunition.

Wilmington.—When migration from the South was at its height, the Chamber lent its influence toward the correction of many conditions which worried the Negroes. In conference with them it was determined that the Chamber should center its efforts on building a new $50,000 school building, raising the wage scale of Negroes five cents an hour, and repainting and repairing Negro tenant houses. There have been gratifying results from these efforts.

Winston-Salem.—A strong tendency on the part of colored people to move into white residential sections was observed. There were complaints of this on the part of white people. The Mayor of the city and others participated in a conference from which it developed that the moving of Negroes into white sections was due to a demand for better living conditions. As a result, the city spurred up its improvement program to round out facilities in colored sections for paving streets, for parkways, better schools, etc. Interracial cooperation here solved a problem fraught with danger.

Other interesting reports of similar work come from Tulsa, Okla., Greenville, S. C., Memphis and Nashville, Tenn., and Petersburg, Va.

It is hardly necessary to go further into the opportunities of interracial cooperation afforded through such an organization as a chamber of commerce. Several secretaries expressed opposition to a standing committee, giving preference to appointing committees at such times as they were needed. The value of having a permanent interracial committee in southern chambers of commerce arises from the fact that Negroes are not admitted into their membership. A standing committee ever ready to hear members of the Negro group on needs of the colored people, serves an excellent purpose. It is perfectly feasible, when such a standing committee makes its report on the needs of the Negro population, for a special committee to be selected to carry out any suggested project for betterment.

EDITORIAL NOTE.—Valuable material on the subject of interracial cooperation is obtainable from the Commission on Race Relations of the Federal Council of Churches of Christ in America, 105 East 22d Street, New York. The *Information Service*, published weekly by the Council's Department of Research and Education, has frequent articles on interracial problems.

Public Recreation in Rhode Island—A Question of Emphasis

To the Editor of THE AMERICAN CITY:

THE opening paragraph of an otherwise interesting and valuable article recently published in THE AMERICAN CITY MAGAZINE creates an impression unfortunate for the reputation of Rhode Island.

"The smallest and most thickly populated state in the Union," it is declared, "has at last awakened to the need of public recreation." The writer goes on to say that the Playground and Recreation Association of America, with the support of the leading newspaper of the state, produced "the key to the door of recreation in Rhode Island in the passage of an excellent state law" which apparently opened that door for the first time. After quoting the law and furnishing some useful data regarding recent additions to the playgrounds in various cities and villages, a brief concluding statement is made that "Providence and Newport have for many years been pioneers in playground work."

The particularly unfortunate character of this article is that it carries misinformation, or at least a mistaken impression, to all but the most careful readers. It would seem that except for the missionary work of the National Society, Rhode Island might still be groping in darkness behind the barred door of indifference and ignorance as to the value of public recreation facilities, yet it is finally admitted, to those who read to the very end, that the chief city, which contains nearly half of the population of the state, and the other famous "city by the sea," have been "pioneers" in these enterprises.

I would be quite unwilling to minimize the value of any efforts that have been made to establish playgrounds in towns or neighborhoods that have been laggard in such very necessary factors of urban life, or unappreciative of any improved laws that will properly aid in their promotion, but I must protest against the idea that we have been walking in darkness or even in deep gloom here in this state.

Even outside of Newport and Providence, where good progress has been made toward the recreationist's ideal of "a playground within five minutes' walk of every child," such oases have not been at all unknown. The readiness of the Legislature to pass without hesitation any new enactment that might assist some of the smaller places in their recreation work, furnishes conclusive proof that the idea was not at all a new one that must be sold to the people by a "drive" or an intensive campaign.

Much, of course, remains to be done, here as elsewhere. There are certain dismal districts where serious problems are presented, demanding costly methods to provide open spaces in congested neighborhoods. There are also suburban towns apparently unmindful of the rapidity with which their present available areas are being obliterated, and of the needs that will presently arise. Perhaps there is too much insistence that Rhode Island, outside of its own great population center, is sort of a national playground, anyway, and that it possesses a most unusual assortment of facilities for every kind of outdoor enjoyment that is anywhere known; but even though such assets need public action for this preservation and greater development for public use, as the writer has been preaching for nearly a quarter of a century, any impression that Rhode Island has been recently "awakened" in this respect, as by missionaries bringing a new evangelism to a heathen land, would be quite erroneous.

HENRY AMES BARKER,
Chairman, Publicity Committee, Providence Chamber of Commerce; also Member Providence Board of Recreation since 1913; Director R. I. Metropolitan Park Commission, 1905-1920.

[EDITORIAL NOTE.—The article referred to in the foregoing communication was published in this magazine for June, 1925, page 657. It is headed "Rhode Island Cities Organize Public Recreation under New State Law." A copy of Mr. Barker's letter, sent by THE AMERICAN CITY to the author of the article, Arthur Leland, Supervisor of the Newport Board of Recreation Commissioners, has brought a reply in which Mr. Leland says:

"Far be it from me to minimize the good work done along recreation lines in Rhode Island, especially in Providence and in Newport. As I have been identified with the work in Newport for seven years, you can see that such action would be furthest from my intention. It was to bring about a much-needed increase in public recreation and physical education throughout the state that the Playground and Recreation Association of America has been working on a state-wide campaign. This has resulted, as stated in the magazine article, in promoting recreation work in many cities and towns which are not so fortunately situated, and which are without the very splendid leadership in recreation given by men like Mr. Barker and the members of the Park and Recreation Commissions in Providence and in Newport, which cities have been pioneers in such work."

It should be added, also, that THE AMERICAN CITY is too well acquainted with the fine spirit which animates the officers and directors of the Playground and Recreation Association of America to believe that that organization would wish to claim undue credit for any of its work in behalf of the recreation movement in Rhode Island or elsewhere. An excellent indication is to be found in the fact that, in an article on the Rhode Island recreation work published in the Association's own organ, *The Playground*, prior to the appearance of THE AMERICAN CITY's article, the credit generously given by Mr. Leland to the Association was "toned down" considerably. The national organization exists as a great cooperative movement in which every one interested in public recreation may share, and through which local leaders are aided in working out their own problems in such a way as to profit by the experience of other cities. Joseph Lee, Howard S. Braucher and their associates are interested in doing a worth-while job, rather than in claiming credit for it.]

Investigation of Earth Roads

The Highway Research Board of the National Research Council, according to Charles M. Upham, Director, has designated Professor S. S. Steinberg of the University of Maryland as Acting Secretary in charge of the new investigation which the Board [illegible] roads. The object of this investigation, which will be national in scope, is to coordinate the efforts and data already available on the improvement of earth roads and to stimulate further research in order to find an inexpensive surface that will carry [illegible]

The City's Legal Rights and Duties

Conducted by A. L. H. Street, Attorney at Law

City's Power to Regulate Occupations

"A LAWFUL business or calling may not, under the guise of regulation, be unreasonably interfered with even by the exercise of the police power," declared the Utah Supreme Court in the case of Ogden City vs. Leo, 182 Pacific Reporter, 960, stating a principle of constitutional law which is recognized by the courts throughout the country.

It has been frequently declared that municipalities have certain inherent powers to regulate occupations, as an incident to exercise of the police power, but usually a city points to some specific statute or charter provision conferring the authority.

Very commonly it is provided that a city may "regulate" certain lines of business, occupations, etc., or pursuits generally. Such provisions have often been declared by courts of last resort to be broad enough to authorize regulations having a legitimate tendency to promote the public morals, peace, health, and good order. But it is equally well established, as declared by the Utah court in the case cited above, that "while it is true that a business may be regulated, . . . such regulation must be within the bounds of reason; that is, the regulatory ordinance must be reasonable, and its provisions cannot be oppressive and a mere arbitrary interference with the business or calling which is regulated." In that case it was ruled that an ordinance forbidding inclosed booths in restaurants was a proper measure designed to promote morals.

A type of invalid ordinances was dealt with by the Florida Supreme Court in the case of one Harrell (79 Southern Reporter, 166). There it appeared that the City Council of Tallahassee had passed an ordinance forbidding the keeping open of places of business on week days, except Saturdays, after 6:30 p. m., with a proviso that automobile supply stores, etc., might remain open until 9 p. m., that cigar stands, drug stores, etc., might remain open until 9:30 p. m. and bowling alleys, moving-picture shows, and pool- and billiard-rooms, until 10:30 p. m. Declaring the ordinance to be void, the Supreme Court said:

"We cannot discover how an ordinance requiring every person conducting a legitimate mercantile business in a town, except a few specially favored classes, to close their places of business at 6:30 o'clock p. m., can in any manner, directly or remotely, even tend to promote public health, public morals, the public safety, or the good order and peace of the community; but, on the contrary, we think that the provision of the ordinance in question . . . is an unwarranted governmental interference with the personal rights of the merchant class of the citizens of the town, and is void."

But in the case of Schacter vs. Hauenstein, 105 Atlantic Reporter, 13, the New Jersey Supreme Court decided that an ordinance of Union, requiring certain classes of stores to close on Sunday, was not invalid because not directed against other classes which might also have been included.

An ordinance having a legitimate tendency to promote the public safety by regulating the manner in which moving-picture theater buildings shall be constructed will not be held by the courts to be void because confined to such places and not including other theaters or places of amusement. Nor does the fact that such an ordinance may have the indirect effect of restricting competition in the moving-picture business render it objectionable. (Arkansas Supreme Court, Rose vs. City of North Little Rock, 206 Southwestern Reporter, 449.)

The fact that thieves often dispose of their plunder to junk dealers warrants a city to adopt measures for the licensing of persons engaging in the business. (California District Court of Appeal, Cooperative Junk Company vs. Board of Police Commissioners of the City of Los Angeles, 177 Pacific Reporter, 308.)

A city ordinance fixing standard sizes of bread loaves and prescribing loaves of one pound as the minimum weight that may be manufactured and sold by a baker, is not an unreasonable or arbitrary exercise of the police power, and is constitutionally valid. (Ohio Supreme Court, Allion vs. City of To-

ledo. 124 Northeastern Reporter, 237.)

In sustaining a sanitary regulation applying to laundries having thirty or more patrons, the Ohio Supreme Court observed in the case of Yee Bow vs. City of Cleveland, 124 Northeastern Reporter, 132, that when a city has the right, under its police power, to impose regulations upon a business, the validity of an ordinance cannot be attacked merely because its scope was not extended to cover the entire field of possible abuses which such an ordinance seeks to prevent. It was further held that an ordinance imposing upon an administrative officer, as a prerequisite to the issuance of a license, the duties of ascertaining whether sanitary and drainage arrangements are sufficient to protect the public health, and whether "adequate ventilation" and adequate plumbing and drainage facilities are provided on the premises, does not unconstitutionally confer arbitrary legislative or judicial powers upon such officer. If his conduct should prove to be arbitrary or palpably unwarranted, resort may be had to the courts.

But that an ordinance permitting arbitrary refusal of a business license is void is shown by the decision handed down by the Michigan Supreme Court in the case of Samuels vs. Couzens, 193 Northwestern Reporter, 212. In that case the Court annulled an ordinance of the city of Detroit, forbidding one to engage in the jewelry business without first securing a license. In its opinion the Court said:

"This ordinance is too indefinite to lend any authority to the administrative officers of the city; it declares no policy to be carried out in the interest of the public health, peace, morals, or welfare, provides no regulations, and grants, without curb or declaration of legislative purpose, arbitrary power to the mayor under which he may license or refuse to license at will. In undertaking to regulate a trade or business, an ordinance should at least express an idea upon the subject of regulation, and not leave to an administrative officer the formulation of a policy wholly legislative in origin and nature. This ordinance is no more than a delegation of an exercise of the police power to the arbitrary will of the mayor, because it defines no public policy or purpose, does not speak in regulatory terms, conveys no idea of an end desired, avows no object to be accomplished by way of means prescribed, saves no rights to persons wanting to engage in the legitimate business of retailing jewelry, for it fixes no conditions to be met, and so offends against elementary principles governing delegated administrative functions under the police power as to render it wholly void."

Items of Municipal Law

Liability of Members of Council for Restitution of Municipal Funds

The rule that members of a city council illegally appropriating municipal funds may be held liable for restitution when they do not act in good faith was lately held by the Minnesota Supreme Court to apply to expenditure of funds to subsidize a baseball and hockey team, to pay for board and lodging for the players and to pay for lumber used to erect a hockey rink, in the city of Eveleth. (Burns vs. Essling, 203 Northwestern Reporter, 605.)

Municipal Responsibility Concerning Sewers

A municipality acts under its governmental function in adopting plans and specifications for a sewer system, and if such plans and specifications are the result of an honest exercise of judgment on the part of a competent engineer employed by the city, then the city is not liable for injury resulting from the adoption of such plans, if the construction is not done in a negligent manner. But if a nuisance is occasioned by some negligence on the part of the city in maintaining public works, the city is liable on the theory that when it undertakes to operate public works it assumes the performance of a ministerial function and that a failure on its part to exercise reasonable care makes it answerable for injuries directly caused by such negligence. It is incumbent upon the city to select competent engineers. (Iowa Supreme Court, Hemminger vs. City of Des Moines, 203 Northwestern Reporter, 822.)

Uses to Which Municipal Property May Be Devoted

Defendant city acquired 12 acres of land for water-works purposes. For many years the tract has been larger than needed for such purposes. Although no part of the property has been expressly dedicated to park purposes, it has been so used in connection with the water-works reservoir. Plaintiff attacked the city's proposal to establish a hospital upon the tract, although the remainder of the land will be more than sufficient for an indefinite expansion of the water-works system.

Disposing of the case—Massey vs. City of Bowling Green, et al., 268 Southwestern Reporter, 348—the Kentucky Court of Appeals upholds the city's right to erect a hospital on the tract. The opinion recognizes that where a city buys property for park purposes it cannot devote the land to inconsistent use, but notes that this particular tract was not acquired for park purposes. Incidentally the Court says:

"A city may own property for which it has no present use, and permit it to be used temporarily for any legitimate purpose, or property devoted to a specific use may become unsuited for that purpose and a change of use become necessary, and it cannot be contended that every purpose for which it is thus used fixes its status irrevocably. If so, a city dump would remain a dump forever, though by reason of abutting development it become highly desirable for other purposes."

Zoning Notes

Prepared by Frank B. Williams
Author of "The Law of City Planning and Zoning"
From data collected by the Zoning Committee of New York (233 Broadway)
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Recent Zoning Ordinances and Enabling Acts

AMES, IOWA.—Ordinance, June 1, 1925.

MAINE.—Enabling act for cities of over 35,000 inhabitants, and village corporations, April 11, 1925.

WALTHAM, MASS.—Ordinance, June 22, 1925.

MINNESOTA.—Act amending law for establishment of residential districts by eminent domain, March 31, 1925.

NEW HAMPSHIRE.—Enabling act for municipalities (following model law prepared by Department of Commerce at Washington, D. C.), April 16, 1925.

FREEHOLD, N. J.—Ordinance, December 22, 1924.

CEDARHURST, N. Y.—Ordinance, March 16, 1925.

KINGSTON, N. Y.—Ordinance, February 5, 1925.

MALVERNE, N. Y.—Ordinance, January 17, 1924.

NEW ROCHELLE, N. Y.—Amendment of ordinance, July, 1925.

PLANDOME, N. Y.—Ordinance, August 15, 1924.

WYOMING, OHIO.—Ordinance, June 3, 1925.

WESTERLY, R. I.—Ordinance, June 1, 1925.

NASHVILLE, TENN.—Enabling act, Private Acts, 1925, Chapter 209.

UTAH.—Enabling act for cities and towns (based upon model act of Department of Commerce, Washington, D. C.), March 21, 1925.

Recent Zoning Decisions

ARKANSAS.—*Herring v. Stannus, Supreme Court, June 29, 1925.* A law passed in 1924 declared that beauty was a valuable property right, especially in residential districts, and authorized cities of the first class to establish residence, business and industrial zones, new non-conforming structures being allowed on permit from the city council.

The city of Little Rock passed a zoning ordinance creating residential districts from which garages, etc., were excluded, except on permit from the city council.

The appellants, having been refused a permit for a filling station in a residential district, were granted permission by the City Council. *Held* that zoning regulation is within the police power of the state; that this ordinance was not passed for esthetic purposes, and that the City Council had not abused its discretion in granting the permission for the station in the residential district.

DISTRICT OF COLUMBIA.—*U. S. ex rel. Stearman v. Oehmann, Supreme Court, July 6, 1925.* Zoning regulation, including the exclusion of business structures from residential districts, is within the police power and is constitutional.

ILLINOIS.—*City of Chicago v. Nord, Municipal Court, case No. 1710500, before Judge Elmer, January, 1925.* The question involved was the legality of converting a one-family house into a two-family dwelling. The premises affected were 5146 Kildare Avenue. A fine of $50 was imposed. A motion for a new trial is pending.

LOUISIANA.—*City of New Orleans v. Liberty Shop, Limited, Supreme Court, April 28, 1924.* The business of retail dealer in ladies' wearing apparel, in a residence district, established contrary to the zoning ordinance (the penalty being fine and imprisonment) is a public nuisance for which injunction will issue.

MARYLAND.—*Tighe v. Osborne, Inspector of Buildings of Baltimore, City Court, June 7, 1925.* In this case Judge Bond sustained the interim ordinance passed after the decision in the Goldman case, discussed in the March *"Zoning Notes."* The friends of zoning regard the decision as a distinct victory for the cause.

MINNESOTA.—*State ex rel. Beery v. Houghton, Inspector, Supreme Court, July, 1925.* The zoning ordinance of Minneapolis excluding a four-family flat building from a restricted residence district is constitutional. The former decisions holding police power zoning invalid are reversed. The Court refers to one of its decisions sustaining zoning by eminent domain as supporting, to a certain extent, this decision, and intimates that zoning under the police power is more to the public advantage than zoning by eminent domain.

NEW JERSEY.—In the following recent cases in the Supreme Court, the erection of a business structure in a residential district, contrary to the zoning ordinance, was authorized following the Nutley case: Prince v. Board of Adjustment of Montclair; Greenberg and Sedlak v. Axford, Director of Streets, etc., of Bayonne; Jersey Land Co. v. Scott, Building Inspector of East Orange; Langheinz v. Kaltenbach, Building Inspector of Elizabeth; State ex rel. Lutz and Clayton v. Same. In Vatter v. Same, a building-line provision was held invalid for the same reason.

NEW YORK.—*Application of Headley v. Fennell, Superintendent of Buildings of City of Rochester, Supreme Court, 124 Misc., 886,* affirmed without opinion by the Appellate Division, July 2, 1925. The case holds that zoning provisions prohibiting the erection of apartment houses in certain parts of the city of Rochester are constitutional, and for this reason, among others, the motion for an alternative writ of mandamus is denied.

Application of Wulfsohn v. Burden, Inspector of Buildings of Mount Vernon, Supreme Court, June, 1925. Application for peremptory order of mandamus for a permit to erect an apartment house, partly in a Residence A, partly in a Residence B, district. The setback provisions vary from 50 feet in the Residence A district to 28 feet in the Residence B district, no setback being required in a Residence C, Business A or Business B district. *Held* that the setback provisions in question were invalid, since they deprived the applicant of the use of more than 58

per cent of his property, and were not "in accord with a well-considered plan" or for "the conservation of property values."

People ex rel. Werner v. Walsh and others, constituting the Board of Appeals of the City of New York, 212 *App. Div.,* 635. The relator desires to erect a garage for more than five automobiles in a business district. The zoning ordinance forbids it, but, under subdivision e of section 7, and section 20, provides for variations The Board of Appeals refused to vary in this case, and the lower court reversed its decision. This Court sustains the Board of Appeals. The mere fact that there are four garages on the westerly side of the block in question, erected under permits granted by the Board of Appeals since the adoption of the zoning resolution in 1916, does not establish the right of the relator to erect his garage there. There must be some limit and the interests of the other property owners must be considered. In the opinion of the Court no unnecessary hardship to the relator was proved. There is a presumption in favor of the correctness of the decision of the Board of Appeals and it does not appear that the Board has abused its discretion.

—*Roehrs v. Walsh, Supreme Court,* reported in *New York Law Journal,* June 3, 1925, p. 907. The discretion of the Board of Appeals when not exercised arbitrarily or oppressively is not subject to revision. In this case there was a division between a lower level invaded by garages, and an upper level devoted to dwelling and residential purposes.

The Municipal Bond Market

By Sanders Shanks, Jr.

Editor, *The Bond Buyer*

THE total of state and municipal bonds sold during the first six months of this year was $718,088,282. This amount is the aggregate of 3,274 separate issues. The figure for the same period of 1924, reported on July 1, 1924, was $806,269,135 and was comprised of 3,111 separate issues, which indicates that the individual issues brought out last year were larger in size than those brought out during the early part of this year. The total for the month of June, 1925, was $120,497,031.

The $10,000,000 4¼ per cent bonds of the state of New Jersey, which were referred to in these columns last month, were sold at the highest price that the state has ever received for its bonds. The purchasers, as has been the case for the past couple of years, were various local banks. The bonds were sold at an average price to yield 3.97 per cent. The city of Los Angeles was the only other municipality in the market seeking to sell a large block of bonds. The city offered $11,350,000 and received a bid of 4.30 per cent, which was rejected by the officials, as it was considered too low. Los Angeles would have done well to accept the offer, as the Santa Barbara earthquake affected the bidding when the bonds were reoffered a few days later. The bids were again rejected and the sale postponed indefinitely.

There are no large blocks of bonds scheduled for sale in the immediate future and it is expected that the volume of sales during the rest of the year will fall considerably short of the record total of 1924.

The following list of important bond sales is given as an index to the market value of bonds of the various municipalities throughout the country:

Amount	Municipality	Maturity	Rate %	Yield %
$ 500,000	Colorado	1940 (opt. 1929)	5	3.86
4,660,000	Philadelphia, Pa.	1975 & 1930	4	3.93
250,000	Madison Co., N. Y.	1932-51	4	3.98
500,000	Cook Co., Ill.	1926-45	4	4.02
300,000	Allegany Co., N. Y.	1937-42	4¼	4.05
1,000,000	St. Paul, Minn.	1926-55	4¼	4.06
495,000	Danbury, Conn.	1926-65	4½	4.09
5,000,000	Chicago, Ill.	1926-45	4	4.10
1,130,000	Yonkers, N. Y.	1926-40	4¼	4.11
1,000,000	Greenwich, Conn.	1932-45	4¼	4.13
4,523,000	Kansas City, Mo.	1928-45	4½	4.13
315,000	Bridgeport, Conn.	1926-55	4¼	4.17
6,000,000	West Virginia	1939-50	4 & 4¼	4.17
1,800,000	Cleveland, O.	1926-50	4¼	4.18
1,000,000	Multnomah Co., Ore.	1931-55	4 & 4½	4.19
450,000	Cincinnati, O., Sch. Dist.	1926-50	4¼	4.23
4,624,000	Hudson Co., N. J.	1926-75	4½	4.25
*612,000	Memphis, Tenn.	1928-52	4 & 4½	4.29
2,590,000	Winston-Salem, N. C.	1927-73	4½ & 5	4.46
325,000	Portsmouth, Va.	1930-54	4½	4.54
600,000	Mercer Co., W. Va.	1926-45	5	4.57
350,000	Sarasota, Fla.	1930-45	5½	4.92
500,000	St. Cloud, Fla.	1927-65	5	5.23

*This item was omitted from our June list. It is interesting to note that on the same day the city of Memphis, Memphis School District, and Shelby County, in which Memphis is located, each held a bond sale. The City Corporation received the most attractive bid.

Taxation and Economy Defined

GEORGE FOSTER PEABODY, of Saratoga Springs, N. Y., calls attention, in a recent letter to the New York *World,* to a timely definition of taxation and economy which appeared in a recent editorial in the *Atlanta Constitution:*

"Taxation is the method by which a citizen invests in the services of government. If it is looked upon as an investment, with the state's determination to pay a satisfactory dividend through service, instead of being regarded as a method of penalizing citizens, the question can be quickly and harmoniously settled, with justice to all and without immunities to any.

"So-called 'economy' in government often plugs the spigot and opens the bung-hole. It too often marvels at petty expenditures and invites major extravagances.

"Economy is stopping waste but not constructive service. It is coordinating to prevent overlapping but not withholding investments that pay dividends in enhanced property values, greater business prosperity, finer community spirit, quickened cooperation and happier and more contented and more prosperous people."

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Mr. E. A. Gaffey, Street Commissioner of Medford, Mass., wrote us a very interesting letter last May commenting on the efficiency and economy of Autocars for all-round city service.

"The two model K Autocars which we purchased from you six months ago have indeed proved satisfactory. We found the five-yard bodies particularly adapted to our requirements in the collection of ashes; as the doors on both sides of the body and the height of the barrel rest, viz., 48 inches from the ground, greatly expedites loading.

"We used the trucks every day throughout the winter both for the collection of ashes and plowing snow and are pleased to say that the work was accomplished with economy and dispatch."

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*Baltimore	*Cleveland	*Indianapolis	*New Haven	*Reading	Shamokin	Wilkes-Barre
Binghamton	Columbus	*Jersey City	*New York	*Richmond	*Springfield	Williamsport
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*Brooklyn					*Syracuse	York

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From the International Union of Cities

Items translated from "Tablettes Documentaires Municipales" by Stephen Child, 538 Merchants Exchange Building, San Francisco, Calif., to whom requests for further information regarding this source of civic documentation should be addressed

Revision of Paris Street Lines. 71.5 (44)

There has recently been filed with the Municipal Council of Paris a proposal in regard to a very complete realignment of the streets of that city. Among other improvements, it is now proposed that at all street crossings, walls are to be cut back for at least 10 metres, enabling better control of traffic. Street lines to-day are in general those established in 1833 to 1837 and are entirely out of harmony with the necessities of modern circulation. A decree of the Council of State, dated August 10, 1923, modified the law in regard to alignments and imposed new conditions with regard to validating such changes.

The Sky-Scraper and City Planning. 72.82:71 (73)

An architect-engineer from Berlin has been studying our American sky-scrapers from the point of view of city planning. He maintains that the art of city planning consists in the clearly defined task of gathering together in an organic unity the demands of city life; considering problems of transportation, health, below-ground and above-ground construction, community financial policies, private and public land policies, and esthetic considerations. He discusses ancient and modern methods of the laying out of cities in Germany and America, with particular emphasis upon the importance of the sky-scraper in city planning. Among other principles that should govern the erection of sky-scrapers, he holds that planning of the sky-scraper should be subordinated to the general plan of the city. Heights of neighboring sky-scrapers should vary in accordance with a preconceived plan. He emphasizes the importance of stepping back the façades, and the esthetic effect of the mass or volume of such structures, and maintains that if all these factors are taken into account the sky-scraper will become an important factor in the esthetic planning of urban sites.

Rio Janeiro Installs a New Water-Supply System. 62.815

This metropolitan South American city has recently, under the administration of a commission of experts, installed a new system of water-supply. The question whether cast iron or cement pipes should be employed was most carefully considered and the decision made in favor of cast iron as being more durable.

Water Purification for Small Towns. 62.816

This problem has recently been given careful consideration by experts in England, and it is now declared that by modern methods now available even small communities of not over 1,000 people may successfully install water purification works without unduly adding to their tax burdens.

Bois le Duc, Holland, Installs Modern Sewage System. 62.82 (492)

Considerable areas of outlying districts of Bois le Duc had been filled with rubbish, and these very districts are now needed to meet the city's growth. There was need also to improve the drainage conditions of the older parts of town. There has resulted a very complicated sewerage problem. The situation of the city, from the point of view of streams which cross and surround it, necessitated special studies on account of the fact that the water must all eventually enter the Meuse River, and that not only rain-water drains but house sewers have their discharge cut off when the level of the Meuse rises too high or falls too low. At periods of low water there is a closed basin from which discharge is possible only under carefully determined circumstances. There results from all this, pollution and serious inconvenience to health, industry, and fishing. In order to solve this complicated problem, a double system of sewers has been installed. Household sewage is separated from rain or surface water (which may discharge anywhere), and the systems of pipings are directed toward points where their discharge does no harm to the neighborhood. Topographic and other basic considerations of the city's situation are such that pumping is necessary and that there must be a division of the sewage system into a certain number of independent districts. Pumping is done by compressed air (Shone system). Household sewage is brought to large air-tight tanks, compressed and then ejected. The cost of the work has amounted to 370,000 florins, and the total area improved is 87.4 hectares, with a population of about 15,000 inhabitants.

Regional Planning in England. 71.2 (42)

The numerous inter-communal and regional committees recently established in England appear to be tending toward the establishment of Provincial Planning Councils. It is maintained that the future of civilization depends in large measure upon scientifically organized regional planning. The great number of reports presented by governmental commissions indicate the necessity of new municipal organisms that will coordinate local administration with the administration of large districts or regions. Among the organizations that have been formed are: The South Wales Regional Survey Commission; The Royal Commission for the Treatment of Sewage; the Committee on Hydraulic Resources; and the Electricity Commission.

Greater Venice, Italy. 71.31 (45.311)

There is a growing need at Venice, Italy, for an expansion of its harbor and industrial facilities. The city has recently procured a considerable extension of its area by annexing a large tract on the mainland, an area greater in extent, in fact, than that of the entire older city. A portion of this territory is to be laid out as a spacious garden city for workmen employed in the harbor works and new factories. A broad boulevard and an enclosing belt of park will separate the new garden city from the industrial lands. The city of Venice has established building regulations which favor the construction of single-family houses. The high walls which so commonly separate private gardens in Italy are to be prohibited in the new community. The actual house construction work will be carried forward by means of privately financed building associations. The area set aside strictly for houses is 120 hectares, and there will be lodgings for 25,000 people. Of the 120 hectares, 28.5 are reserved for streets, 12.5 for public open spaces, playgrounds, and so on, 10 hectares for public buildings, 12.5 hectares for detached houses, and 56.5 hectares for workmen's multi-family houses.

Hilversum, a Suburb of Utrecht, Holland. 71.31 (492.8)

Hilversum has increased in population from 12,000 in 1890 to 44,000 in 1924. This rapid growth has led to the creation of a new modern suburb. The architectural character of this new community has been most carefully planned under the direct supervision of the City Architect of Utrecht and with very interesting and harmonious results.

International Congress of Cities and Local Authorities to be held in Paris, Sept. 28-Oct. 4, 1925—See page 190.

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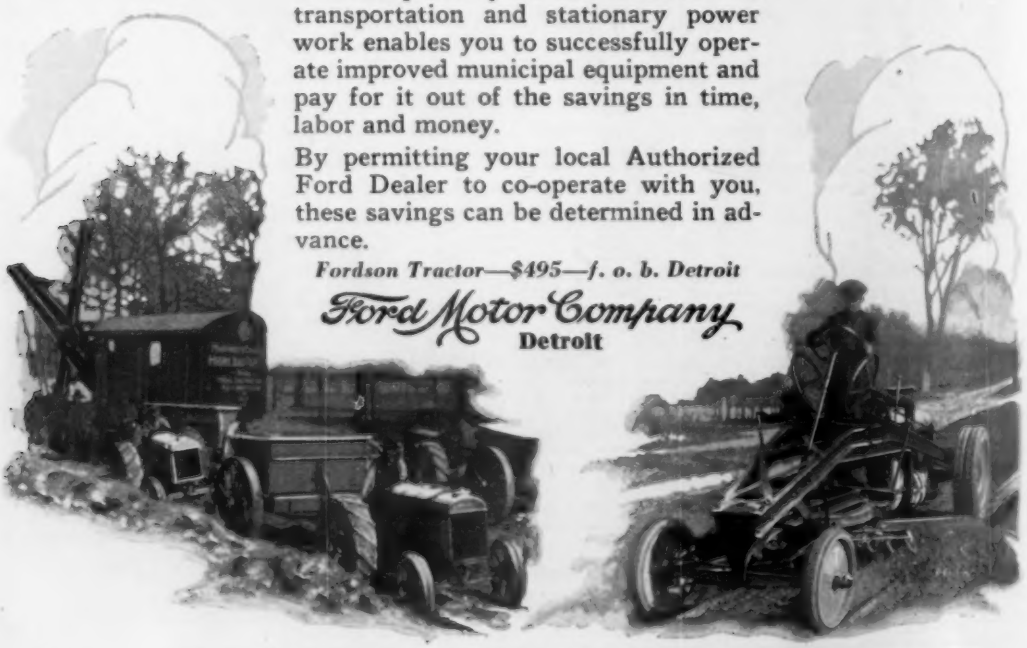

Municipal and Civic Publications

Prices do not include postage unless so stated

Port Development.—By Roy S. MacElwee, Ph. D., Commissioner of Port Development, Charleston, S. C. First edition. McGraw-Hill Book Company, Inc., New York. 1925. XV + 456 pp. Illustrated. $5.00.

The valuable material in this volume is developed in four divisions: (1) the reason for port development, and its value to the nation and to the port city; (2) a comparison of the physical features of many ports, to determine those that are of particular importance and advantage; (3) a comparison of the traffic facilities and advantages of ports; (4) an extended discussion of free ports. Engineers, public officials, port commissioners, traffic managers, and export managers will find it of great practical value. The relation of port development to city planning is set forth. The author's book on Ports and Terminal Facilities is well known. The present volume deals particularly with government administration, traffic, and solicitation—how to develop port business. A new edition of the earlier work will further discuss the engineering side of the subject with the idea of determining the most economical equipment to give the least congestion and greatest dispatch at the lowest cost.

The Municipal Year Book for 1925.—Founder and Director, Sir Robert Donald, G. B. E., LL. D.; Editor, C. F. Bulpitt; Proprietors, The Municipal Journal, Limited, Sardinia House, Sardinia Street, London, W. C. 2, England. LVIV+763 pp. 15 shillings net.

This volume is an index to the whole system of local administration in Great Britain. Revisions and additions have brought the new edition up to date. There is a special introductory article by the Rt. Hon. Neville Chamberlain, Minister of Health, on the present position of local government. Information on the situation, extent, and activities of the various county councils in England and Wales has been included for the first time. Another new feature is a table giving the past year's operations of the various railless services—motor busses or railless cars—carried on by municipal authorities. Tax assessments, housing, town planning, refuse collection and disposal, street cleaning, sewage disposal, libraries, municipal markets, slaughter-houses, baths, and wash-houses, are some of the features of municipal administration reported upon. Each section has an introductory chapter explaining the powers and duties of the different classes of authorities, and there is a comprehensive list of municipal and kindred societies.

The Regularization of Employment.—By H. Feldman, Ph. D., Assistant Professor, Industrial Relations, Amos Tuck School of Administration and Finance, Dartmouth College. Published under the auspices of the American Management Association, by Harper & Brothers, New York. 1925. XVI+437 pp. $3.50.

A study in the prevention of unemployment. The great need for such a definite treatment of this problem is made evident in the first two chapters, which analyze the evil of insecurity of employment—its causes and its effects upon the individual wage-earner and upon industry. The reader cannot fail to be impressed with the importance of this book in the municipal and civic field. Its bearing upon the life and welfare of communities is evident. The author maintains that expedients can be partially superseded by a technique of business management which will greatly moderate the disease of unemployment. He explains the principles which are applicable and illustrates them by the experience of American firms. The treatment is sincere and enlivening—based on personal investigation. The greater part of the discussion is given to individual and industrial remedies, but there are a hundred pages on social and governmental remedies, and it is emphasized that there is a place for all groups in the program of cure.

A List of Music for Plays and Pageants.—By Roland Holt, a former Director of The New York Drama League, The Oratorio Society of New York, and The Century Opera Company. D. Appleton and Company, New York. 1925. XII+93 pp. $1.00.

A book of practical advice for all those who have to do with the musical programs of pageants and plays—hence useful for the dramatic directors of schools, camps, community organizations, etc. The "Overture: Before You Begin" covers briefly the problems of getting a music director, and those of the orchestra or band and of choosing music. Then follow a list of music for pageants and plays in general, and of national music, and suggestions for Christmas music, for music particularly for children, and for American plays.

Public Health Engineering.—By Earle B. Phelps, Professor of Sanitary Science, College of Physicians and Surgeons, Columbia University. The Macmillan Company, New York. 1925. VIII+365 pp. Illustrated. $3.00.

This contribution from the pen of Professor Phelps will be welcomed by a large group of sanitarians, including health officers and sanitary engineers who have known his long and faithful work at the Lawrence Experiment Station in Massachusetts, at the Sanitary Research Laboratory of the Massachusetts Institute of Technology, and at the Hygienic Laboratory of the U. S. Public Health Service at Washington. The book is primarily intended as a means of broadening the view-point of both the physician and the sanitary engineer, an object for which the late George Chandler Whipple worked so long and so diligently. In a book covering so broad a field, brevity is necessary, but Professor Phelps has covered his field well and in such an interesting manner, with bibliographies of collateral reading, that the student will use this book as a starting point. The pollution of the air of our cities and the proper ventilation of buildings are the subjects of the opening chapters, after the introductory discussion. These are followed with two chapters on municipal water-supply, others on sewerage and sewage treatment, the pasteurization of milk, and lighting as affects public health, and a miscellaneous chapter on the collection and disposal of municipal refuse, mosquito control, and fly control.

Civic Sociology.—By Edward Alsworth Ross, Ph. D., LL. D., Profesor of Sociology, University of Wisconsin. World Book Company, Yonkers-on-Hudson, N. Y. 1925. VI+365 pp. Illustrated. $1.80.

The student of this text-book is assumed to be of senior high school age and to be seeking the knowledge of social and civic problems that will lead to sound citizenship. He is first shown the principal trends in American society, and is then introduced to the big issues he will have to meet. Among the social problems are: maintaining the stability of marriage and the family unit; child welfare; the right development of education; standards of social distinction; dealing with crime and poverty; standards of business and professions; and speeding up social progress. In the presentation of big civic problems—personal liberty, commercialism, sectionalism, sectarianism, and class struggle—the spirit of idealism is especially strong. An inspiring book, which will help to make intelligent and public-spirited citizens.

Hygienic Fundamentals of Food Handling.—By Charles Thom and Albert C. Hunter, of the Microbiological Laboratory, Bureau of Chemistry, U. S. Department of Agriculture. Williams & Wilkins Company, Baltimore. 1924. 228 pp. Illustrated. $3.00 postpaid.

A discussion of the principles involved in keeping food clean, unpolluted, unspoiled, and free from the germs of human disease. Technical, bacteriological and chemical references are made only when necessary. The chapter heads are: Fitness for Food and Wholesomeness Defined; Food Preservation; Spoilage; Food Poisoning and Food Infections; Cereal Products; Sound Fruits and Vegetables at the Factory; Soured Plant Products; Eggs; Milk and Its Products; Fish; Shellfish; Poultry; Meat and Meat Products; Water and Beverages; Market Sanitation.

Imprisonment.—By Bernard Shaw. Brentano's, New York. 1924. VIII+85 pp. 75 cents.

This essay is issued by the Department of Christian Social Service of the National Council of the Protestant Episcopal Church. It maintains that imprisonment practiced as punishment as well as a means of detention is an extremely wicked system, some of the most cruel features of which the public does not understand and is not deliberately responsible for; that vengeance is the cardinal vice of the system and makes reform of the criminal impossible; that society has the right of self-defence, extending to the destruction or restraint of lawbreakers; that citizens should contribute to civilized society their share of its great cost and give not more than their share of trouble; and that when detention and restraint are necessary, the criminal's right to contact with all the spiritual influences of his day should be respected and its exercise facilitated. But, regarding this concept of individual freedom, Mr. Shaw adds: "We do not apply it to children, at home or at school, nor to employees, nor to persons of any class or age who are in the power of other persons."

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When writing to Advertisers please mention THE AMERICAN CITY—Thank you.

Land Subdivisions and the City Plan.—By Herbert S. Swan and George W. Tuttle. A supplement to the *National Municipal Review* for July, 1925. 28 pp. Illustrated. Including Rules for the Guidance of the Planning Commission in Approving New Subdivisions. "A city which has obtained subdivisions which are well designed and which dovetail into each other satisfactorily has taken one of the most substantial steps towards the realization of an efficient and comprehensive plan." (Apply to National Municipal League, 261 Broadway, New York, N. Y.)

Concrete Paving for Residence Streets.—A memorandum prepared for the Mayor and the Commissioner of Public Works, Detroit, Mich., by the Detroit Bureau of Governmental Research, Inc. June, 1925. 23 mimeographed pp. The issue in Detroit is between concrete and asphalt. A review of the general problem and the local conditions. (Apply to the Bureau.)

Colorado Municipalities.—New bi-monthly magazine published by the Colorado Municipal League. The second issue—June, 1925—contains 24 pp. and is illustrated. It reports the proceedings of the third annual convention of the League, which was held May 13-15, 1925, at Colorado Springs. There is a department of Chamber of Commerce Activities in Colorado Cities, furnished by the State Association of Commercial Organizations of Colorado, and one of City News Briefs. The object of the publication is to review the civic progress of Colorado towns and cities. (Apply to Don C. Sowers, Secretary-Treasurer of the League, Bureau of Business and Government Research, University of Colorado, Boulder, Colo.)

The Official City Plan of Cincinnati, Ohio.—Adopted April 16 by the City Planning Commission, 1925. See **The American City**, May, 1925, p. 583. An elaborate report, of 274 pp., with many illustrations, including folding map inserts. The Technical Advisory Corporation, 15 Park Row, New York City, were the consulting engineers. The report is an epitome of the studies on which it is based and covers an attempt to plan for the orderly development of the city for fifty years to come. It includes suggestions for regional or county planning. The building zone ordinance, which is an integral part of the City Plan, is given in an appendix. (Apply to the United City Planning Committee, 18 West Seventh Street, Cincinnati, Ohio.)

The Bonded Debt of 207 Cities as at January 1, 1925.—By C. E. Rightor, Chief Accountant, Detroit Bureau of Governmental Research, Inc., 316 East Jefferson Avenue, Detroit, Mich. Reprinted from *National Municipal Review* for June, 1925. 9 pp. Tables. An annual report, covering total amount of bonds outstanding as a liability by each city, classified as to whether they were issued for general public improvements, schools, or utilities; sinking fund similarly classified; net bonded debt; and per capita net bonded debt. See also the *Review* for May, 1923, and June, 1924. (Apply to National Municipal League, 261 Broadway, New York, N. Y.)

What the Ports of the World Are Doing and What the Port Experts Think.—A discussion of port matters with particular regard to the public ownership of public wharves at New Orleans. Prepared for the Board of Port Commissioners of the Port of New Orleans by J. H. Walsh, General Manager for the Board, and President, American Association of Port Authorities. Published by direction of the Board. 30 pp. (Apply to the Board.)

Delaware's Adventures in Citizenship.—Report to the Annual Meeting of the Service Citizens of Delaware, May 15, 1925, by Joseph H. Odell, Director. 45 pp. Illustrated. Portraying the accomplishments of the organization through the reports of its leaders in the departments of community organization, the Bureau of Education, visiting teachers, the work of the University of Delaware (particularly as to the Foreign Study Plan), Americanization, safety education, school building, etc. (Apply to Service Citizens of Delaware, 4116 Du Pont Building, Wilmington, Del.)

Direct Legislation in Detroit 1910-1925.—This bulletin has been prepared by the Detroit Bureau of Governmental Research because there has been criticism concerning the frequent use of the referendum in Detroit. The study has been made with the idea of discovering any serious defects, and of suggesting remedies that might be of public benefit. The June 12, 1925, issue of *Public Business*. 16 pp. The summary of direct legislation was prepared by Adolph J. Koenig, of the University of Michigan. (Apply to Lent D. Upson, Director of the Bureau, 316 East Jefferson Avenue, Detroit, Mich.)

Effect of Hydrated Lime and Other Powdered Admixtures in Concrete.—By Duff A. Abrams, Professor in Charge of Structural Materials Research Laboratory, Lewis Institute, Chicago. Authorized reprint from the copyrighted Proceedings of the American Society for Testing Materials, Vol. 20, Part 2, 1920. With an Appendix on "Further Tests of Hydrated Lime in Concrete." Bulletin 8 published by the Laboratory. Second edition, June, 1925. 74 pp. Charts, tables, 1 photograph. (Apply to the Laboratory.)

Juvenile Courts at Work.—A study of the organization and methods of ten courts. By Katherine F. Lenroot and Emma O. Lundberg. U. S. Children's Bureau Publication No. 141. 323 pp. Photographs, charts, tables. The ten juvenile courts investigated are in different parts of the country, serving cities of more than 100,000 but less than 1,000,000 population. The inquiry led to conferences on juvenile-court standards and to the formulation by a committee of judges, probation officers, and others directly concerned with juvenile-court work, of the standards which should govern juvenile-court organization and administration. 45 cents. (Apply to Government Printing Office, Washington, D. C.)

Safeguarding the Sanitary Quality of Drinking and Culinary Water Supplied on Interstate Carriers.—By E. C. Sullivan, Assistant Sanitary Engineer, U. S. Public Health Service. Reprint No. 935 from the Public Health Reports, July 4, 1924. An address made at the joint meeting of the municipal section of the Providence Engineering Society and the local section of the American Society of Civil Engineers, in Providence, R. I., February 20, 1924. 16 pp. The work of supervision is one of cooperation between the U. S. Public Health Service and state and local health departments and agencies. 5 cents. (Apply to Government Printing Office, Washington, D. C.)

Highway Research Board.—Proceedings of the Fourth Annual Meeting, held at Washington, D. C., December 4-5, 1924. Edited by Charles M. Upham, Director, Highway Research Board, and H. F. Janda, Assistant Director. Published by the Division of Engineering and Industrial Research, National Research Council. 1925. 164 pp. Illustrated. With a statement of the development, organization, membership, committees, and state contact men of the Board. Important committee reports on highway design, construction, maintenance, and finance. (Apply to the publishers, Washington, D. C.)

Protection of Small Water Supplies Used by Railroads.—By O. E. Brownell Assistant Engineer, Division of Sanitation, Minnesota State Board of Health. Reprint No. 952 from the Public Health Reports of the U. S. Public Health Service, September 5, 1924. 10 pp. Illustrated. Showing how to locate, construct and maintain small water-supplies that are to be used for the indicated purpose, so as to insure their bacteriological purity. 5 cents. (Apply to Government Printing Office, Washington, D. C.)

A Study of the Pollution and Natural Purification of the Ohio River.—A special division (III) of this study, on the subject of Factors Concerned in the Phenomena of Oxidation and Reaeration. By H. W. Streeter, Sanitary Engineer, and Earle B. Phelps, Consultant, U. S. Public Health Service. Public Health Bulletin No. 146, of the U. S. Public Health Service, February, 1925. 75 pp. Map, charts, tables. 15 cents. (Apply to Government Printing Office, Washington, D. C.)

Proceedings of the American Society for Municipal Improvements.—Report of the convention held in Boston, September 29-October 2, 1924. VII+421 pp. Illustrated. Authoritative papers on paving design, construction, and maintenance, traffic regulation, city planning, zoning, electric lighting, sewage treatment, and disposal, waste collection and disposal, contracts, waterworks and water-supply, street cleaning, etc. (Apply to Charles Carroll Brown, Secretary, P. O. Box 1134, Lakeland, Fla.)

Ordinance on Water-Meters, Chicago.—Provision for the installation of meters in all buildings. Suggested amendments to present ordinances, proposed by Albert A. Sprague, Commissioner of Public Works, Chicago, and intended not only to provide the funds required for an improved water-supply and fire service, but to more equitably distribute the charges for such services. 24 pp. (Apply to Municipal Reference Library, 1005 City Hall, Chicago, Ill.)

American Association for Promoting Hygiene and Public Baths.—*Journal* of the Association for April, 1925, giving the proceedings of the Fourteenth Annual Meeting, held May 8 and 9, 1925, in Richmond, Va. 110 pp. Illustrated. Valuable material, including reports of state regulation of baths and swimming pools. Subscription, $1 per year. (Apply to Arthur Morton Crane, Manager of the *Journal*, Roselle Park, N. J.)

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A Review of Local Government Taxation in Saskatchewan.—By George D. Mackie, M. E. I. C., City Commissioner, Moose Jaw, Sask. Handy size. 15 pp. Saskatchewan is shown to have the lowest taxation of any of the three Prairie Provinces, and, while under a heavy financial burden, to be in a position to lighten this burden by economy and wise legislation. (Apply to the author.)

Financial Statistics of Cities of 30,000 Population and Over: 1923.—Assessed valuation of property subject to general property taxes, total revenues, governmental-cost payments, and net debt, of 248 cities. 13 pp. Tables. (Apply to the Bureau of the Census, Washington, D. C.)

Municipal Reports

CHICAGO, ILL.—Annual Report, South Park Commissioners, for fiscal years ending February 28, 1923, and February 29, 1924

CHICAGO, ILL.—Five Year Cumulative Report, Municipal Tuberculosis Sanitarium, 1918-1922

CONCORD, N. H.—Annual Report, Board of Water Commissioners, 1924

NEW YORK, N. Y.—Report of Chief Engineer, Board of Estimate and Apportionment, 1923

STAUNTON, VA.—Annual Report of City, year ending March 31, 1925

On the Calendar of Conventions

AUGUST 17-20.—DETROIT, MICH.
International Association of Municipal Electricians. Annual meeting. Secretary, William R. Arbuckle, 99 West 41st Street, Bayonne, N. J.

AUGUST 19-21.—ANNAPOLIS ROYAL, N. S.
Union of Nova Scotia Municipalities. Annual convention. Secretary, Arthur Roberts, K. C., Bridgewater, Nova Scotia.

AUGUST 24-27.—CHICAGO, ILL.
Association of American Cemetery Superintendents. Annual convention. Secretary, W. B. Jones, Highwood Cemetery, Pittsburgh, Pa.

AUGUST 25-27.—SPIRIT LAKE, IOWA
League of Iowa Municipalities. Annual convention. Secretary, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 26.—ST. JOHN, N. B.
Union of New Brunswick Municipalities. Annual convention. Secretary, James King Kelley, 108 Prince William Street, St. John, N. B.

SEPTEMBER 1-3.—SUNBURY, PA.
Association of City Planning Commissions of Cities of the Third Class in Pennsylvania. Annual convention. Secretary, Leo J. Buettner, Johnstown, Pa.

SEPTEMBER 1-3.—SUNBURY, PA.
League of Cities of the Third Class in Pennsylvania. Annual convention. Secretary, Fred H. Gates, City Clerk, Wilkes-Barre, Pa.

SEPTEMBER 2-4.—TORONTO, ONT.
Ontario Municipal Association. Annual convention. Secretary, Horace L. Brittain, 189 Church Street, Toronto, Ont.

SEPTEMBER 4-5.—SIOUX CITY, IOWA
Iowa Association of Commercial Organization Secretaries. Annual meeting. Secretary, G. B. Eastburn, Marshalltown, Iowa.

SEPTEMBER 8-11.—ON BOARD S. S. RICHELIEU, EN ROUTE FROM MONTREAL TO QUEBEC
New England Water Works Association. Annual convention. Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 14-17.—ROCKFORD, ILL.
American Institute of Park Executives and American Park Society. Annual convention. Secretary-Treasurer, Will O. Doolittle, Box 432, Rockford, Ill.

SEPTEMBER 14-18.—DETROIT, MICH.
Illuminating Engineering Society. Annual convention. General Secretary, Norman D. Macdonald, 80th Street, and East End Avenue, New York, N. Y.

SEPTEMBER 15-18.—DECATUR, ILL.
The American Society of Sanitary Engineering. Annual meeting. Secretary, James R. Walker, 105 Cummings Street, Boston 18, Mass.

SEPTEMBER 21-24.—HAMILTON, ONT.
Dominion Association of Fire Chiefs. Annual convention. Secretary, Chief James Armstrong, Box 56, Fire Department, Kingston, Ont.

SEPTEMBER 22-24.—QUEBEC, QUE.
Canadian Good Roads Association. Annual convention. Secretary, George A. McNamee, 909 New Birks Building, Montreal, Que.

SEPTEMBER 28-OCTOBER 2.—CLEVELAND, OHIO
National Safety Council. Annual Congress. Managing Director, W. H. Cameron, 168 North Michigan Avenue, Chicago, Ill.

SEPTEMBER 28-OCTOBER 3.—LONG BEACH, CALIF.
League of California Municipalities. Annual convention. Executive Secretary, Wm. J. Locke, 707 Chancery Building, 564 Market Street, San Francisco, Calif.

SEPTEMBER 28-OCTOBER 4.—PARIS, FRANCE
International Congress of Cities. Arranged by the Union Internationale des Villes et Communes and the Union des Villes et Communes de France. Secretary-General and Director, M. Emile Vinck, Union Internationale des Villes et Communes, Rue de la Regence, 3bis, Bruxelles, Belgium. Paris headquarters: 29 Rue de Sevigne, Paris 3e. American headquarters: Office of THE AMERICAN CITY MAGAZINE, 443 Fourth Avenue, New York.

SEPTEMBER 29-OCTOBER 1.—WESTERN UNIVERSITY, LONDON, ONT.
Canadian Tax Conference and Canadian Civil Service Research Conference of the Citizens' Research Institute of Canada. Secretary, H. L. Brittain, 189 Church Street, Toronto, Ont.

SEPTEMBER 29-OCTOBER 2.—LOUISVILLE, KY.
International Association of Fire Engineers. Annual convention. Secretary, James J. Mulcahey, City Hall, Yonkers, N. Y.

OCTOBER 5-6.—BOSTON, MASS.
Massachusetts Federation of Planning Boards. Twelfth Annual Conference on City Planning. Executive Secretary, Edward T. Hartman, 37 State House, Boston, Mass.

OCTOBER 5-10.—ASHEVILLE, N. C.
Playground and Recreation Association of America. Annual Recreation Congress. Secretary, H. S. Braucher, 315 Fourth Avenue, New York, N. Y.

OCTOBER 12-13.—WINCHESTER, VA.
League of Virginia Municipalities. Annual convention. Secretary, Morton L. Wallerstein, 408 Travelers Building, Richmond, Va.

OCTOBER 12-15.—ST. LOUIS, MO.
American Red Cross. Annual convention. Secretary, Mabel T. Boardman, National Headquarters, Washington, D. C.

OCTOBER 12-15.—TULSA, OKLA.
Southwest Water Works Association. Annual meeting. Secretary, R. D. Morgan, Mexia, Tex.

OCTOBER 13-16.—WASHINGTON, D. C.
National Association of Railroad and Utilities Commissioners. Annual convention. Secretary, James B. Walker, 270 Madison Avenue, New York, N. Y.

OCTOBER 14-16.—MONTREAL, QUE.
American Society of Civil Engineers. Fall meeting. Secretary, George T. Seabury, 33 West 39th Street, New York, N. Y.

OCTOBER 19-22.—ST. LOUIS, MO.
American Public Health Association. Annual meeting. Secretary, Homer N. Calver, 370 Seventh Avenue, New York, N. Y.

OCTOBER 21-23.—OTTAWA, KANS.
League of Kansas Municipalities. Annual convention. Secretary, John G. Stutz, Lawrence, Kans.

OCTOBER 26-28.—KANSAS CITY, MO.
National Association of Commercial Organization Secretaries. Annual meeting. Secretary-Treasurer, A. V. Snell, Chamber of Commerce, Jacksonville, Fla.

OCTOBER 26-29.—DES MOINES, IOWA
American Society for Municipal Improvements. Annual convention. Secretary, Charles Carroll Brown, P. O. Box 1134, Lakeland, Fla.

NOVEMBER 17-19.—GRAND RAPIDS, MICH.
International City Managers' Association. Annual convention. Secretary, John G. Stutz, Lawrence, Kans.

NOVEMBER 17-19.—PITTSBURGH, PA.
Joint Convention of National Municipal League, American Civic Association, Governmental Research Conference, and National Association of Civic Secretaries.

NOVEMBER 30-DECEMBER 3.—NEW YORK, N. Y.
American Society of Mechanical Engineers. Annual meeting. Secretary, Calvin W. Rice, 29 West 39th Street, New York, N. Y.

JANUARY 11-15.—CHICAGO, ILL.
American Road Builders' Association. Annual convention and Road Show. Secretary, Ethel A. Birchland, 37 West 39th Street, New York, N. Y.

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Tarvia Service
Chapter VIII

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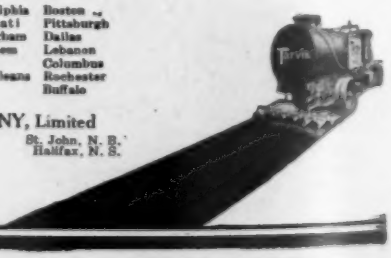


News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

The Manufacture of Hollowspun Concrete Street-Lighting Standards

By J. R. Townsend

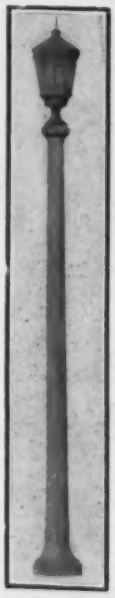
Chief Engineer, George Cutter Works, Westinghouse Electric & Manufacturing Company

FOR some years reinforced concrete has been used more or less successfully for the construction of standards or posts for street-lighting systems. Many of the earlier standards, however, were unsatisfactory because the basic principles of construction were not well enough understood to produce a post that would stand up under service conditions, especially in the northern sections of the country where freezing and thawing conditions are severe.

A number of elements enter into the proper construction of a lighting standard, such as (1) correct mechanical design, (2) proper consistency of concrete mix, (3) sufficient thickness and density of concrete envelope to seal the steel reinforcing against air and water, and (4) proper curing of concrete.

In designing a standard of this kind, consideration must be given to mechanical strength, utility, and appearance.

With regard to strength, the post must stand transportation to the place of installation and also windage and traffic abuse after being installed. It also must provide a substantial means of attachment for a lighting unit, of whatever type selected. A conduit must be provided through the center of the pole for connecting the lamp socket to the underground cable. Last, and of vital importance, the exposed surface of the standard should have a pleasing appearance, and be tough and hard so that it will not be easily marred.



SHERIDAN HOLLOW-SPUN CONCRETE STANDARD WITH OCTAGONAL JUNIOR LIGHTING UNIT

The quantities of the various aggregates should be properly proportioned to assure a filling of all voids, as far as possible, otherwise the steel reinforcing will not be properly sealed from the elements. The maximum strength of concrete is developed by the use of a large size of aggregate with a sufficient quantity of smaller particles to fill all except the minute voids, which are filled by the cement.

In designing the reinforcement for a concrete lighting standard, it must be borne in mind that, aside from the consideration of appearance, the concrete serves no appreciable purpose other than holding the steel members rigidly in place with relation to one another. The actual strength of the standard (except for straight column load) is the strength of the reinforcing. It is desirable, therefore, that the reinforcing shall be as close to the outer surface as practicable.

For mass concrete work, one to two inches of imbedding for reinforcement is required, to protect the steel from corrosion. Most of the early failures of concrete lighting standards were due to a lack of sufficient imbedding of the steel reinforcement. Where steel or iron corrodes, the space required by the oxide is many times greater than that required by the steel itself. This results in an explosive pressure which will push the concrete away from the steel to form room for the greater bulk of oxide. A thin layer of porous concrete allows moisture to quickly reach the steel; the resultant oxide chips away the concrete, leaving the bare steel. Desirable practice, therefore, requires a concrete lighting standard to be very large in diameter to imbed the steel properly, or to be made of a very dense concrete which may be depended on to properly seal it up with less than a 1 to 2-inch thickness.

Large diameter means increased cost, increased freight and handling charges, and greater obstruction on the street when erected. By means of the Hollowspun method of manufacture, poles can be made with the reinforcing steel located much closer to the outer surface than is required by other methods and still be imbedded sufficiently to prevent corrosion. This produces standards with graceful, slender lines that have great strength and endurance against the severe traffic conditions which obtain in almost all large cities.

In brief, this process is as follows: A reinforcing cage is prepared and placed in a split cast iron or steel mold. This cage is properly centered in the mold and is held rigidly in place by concrete spacer-buttons attached to the cage bars at frequent intervals (a patented process). The mold is then closed, except at one end, turned up vertically, and filled full of concrete from the open end. A cover plate is then bolted over this open end. The mold is then lowered to a horizontal position, placed in a spinning lathe, and rotated at a high rate of speed for a predetermined period. This rotation at high speed serves a twofold purpose. The first is a separator action; the heavy aggregates are thrown to the outer sur-

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face and densely packed, while the surplus water and air, being lighter than stone and cement, are forced to the center. The stone or granite pieces, being heavier than cement, are forced tightly together, and only enough cement to fill the voids remains in the mass. The surplus cement is forced to the center with the surplus water and entrapped air. In this way a very dense, uniform surface texture is obtained which cannot be duplicated by any other method of manufacture. Sufficient water can be used to make a readily workable consistency, as the surplus water is poured out of the mold immediately after the spinning operation.

The second function of the spinning operation is to form a natural conduit through the center of the pole for the electrical conductors. The proper proportioning of the aggregate mix provides just sufficient surplus cement mortar for a lining to the conduit through the center of the post. This cement mortar is very smooth and allows the free pulling of wire or cable without injury.

Lighting units are attached by means of brass sleeves threaded to the end of the reinforcing bars and are cast flush with the top of the standard. These inserts are bolted in position in the mold head so that exact placement is possible.

Most Hollowspun concrete lighting standards are cast with a ground section or sub-base which can be set in the ground in the same manner as can a wooden pole. Except where soil conditions are unfavorable, no additional concrete foundation is necessary.

After being properly cured, the lighting standards are given a brush treatment of acid on the outer surface to remove the flat neat cement, leaving a clean crushed granite or marble finish.

Telegraph and trolley poles are made in a similar manner, using gravel instead of crushed marble or granite, but they are not acid-brushed, as this better finish is not required.

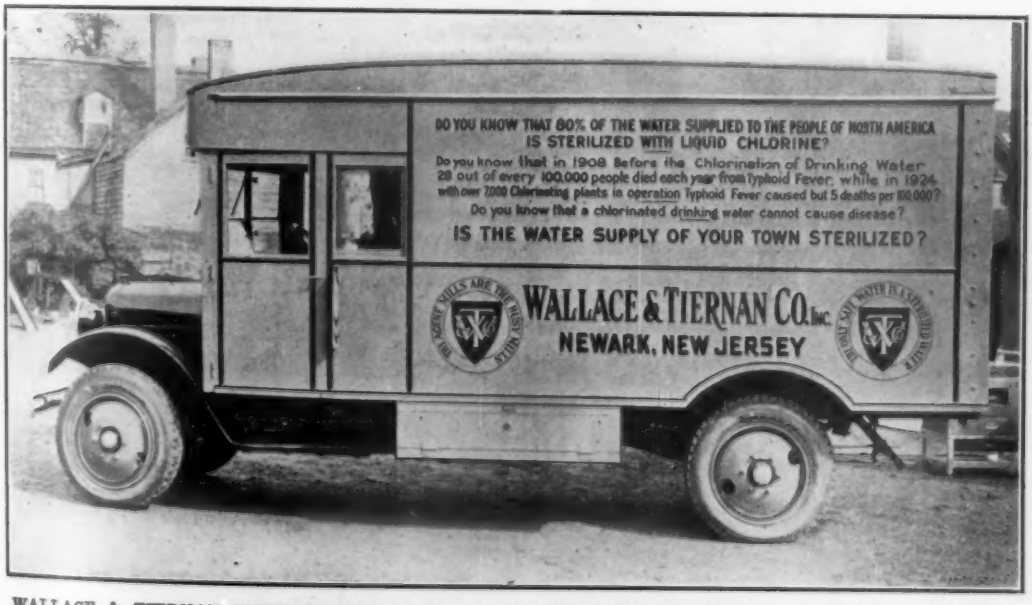
No matter how well designed, a concrete pole cannot be expected to give satisfactory results unless properly cured. The form should not be removed, nor the pole handled, until the concrete has attained its final set. After that, it must be hydrated for at least fourteen days. Curing for another fourteen days is then required to develop its approximate full strength for shipping.

McAfee Appointed General Sales Manager of the Dorr Company

The Dorr Company, 247 Park Avenue, New York City, has announced the appointment of D. S. McAfee, Manager of its Sanitary Engineering Department, as General Sales Manager in charge of the sales work of all departments of the company in the United States, Canada, and Mexico. Mr. McAfee joined the Sales Department of the Dorr Company in the spring of 1916, and at the beginning of 1922 he took charge of both the Sanitary Engineering and the Development Department. Under his direction the work of the Sanitary Engineering Department expanded so rapidly that in June, 1923, he found it necessary to relinquish his Development Department work and since that time has devoted all his energies to managing the Sanitary Engineering Department.

A 14,000,000-Gallon Well Development

The Layne-Texas Company, Houston, Texas, is at present developing 14,000,000 gallons daily additional water-supply for the city of Houston. Ten million of this will come from five new wells, and the other four million gallons from overhauling a considerable portion of the already existing pumping-plant. This company is also furnishing water-supply consisting of both well and pump at Weimer and Shiner, Texas, and has just completed a contract with Lufkin, Texas.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1—An electric driven "U" loading wagon for the Consumer's Company, Chicago. Notice how easily two men can keep the machine going to capacity.

2—A Barber-Greene "U" unloading a box car of anthracite in 4 hours for the Lorr Brothers Coal Company, Chicago. Wheeling is eliminated and but two helpers are used.

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3—A series of Barber-Greene "U" Conveyors, handling oyster shell for the H. C. Rowe Co.

4—A "U" loading sand in a sand pit. Notice how the sand is screened. One man loads 3 yards in 15 minutes. Two men load 5 yards in 5 minutes.

5—A Barber-Greene "U" loading brick into trucks from a kiln for the Onondaga Brick & Tile Co., Onondaga, New York. This is a good way to shorten and eliminate wheelbarrow hauls.

$448 That Tell High Handling Costs Good-bye

What the low price of $448.00 for the Barber-Greene "U" equipped with a 3 phase, 60 cycle, 220 volt, electric motor, means is almost self evident.

For an exceptionally low investment from two to ten men, depending upon the routine of the work, can be eliminated from the yard gang payroll. With competition as keen as it is, such a reduction of handling costs, and hence production costs, is obviously desirable.

For instance, the Barber-Greene "U" reduces the car unloading gang to one or two men. It has a cleated belt—and a low charging end that can be easily nosed beneath hopper-bottomed cars. These two features help the Barber-Greene "U" to unload from 200 to 400 tons of coal, or a proportionate quantity of gravel or other materials, per day.

That means good-bye to slow, inefficient unloading—good-bye to high unloading costs—good-bye to excessive labor turnover—good-bye to an extra production charge. The Barber-Greene conveying belt is edged with clips that provide a troughing effect, and eliminate wear between the belt edge and the conveyor frame. Two steel channels make a husky, rigid conveyor frame.

The Barber-Greene "U" is a he-man conveyor in a small size. Its cleated belt carries the large lumps that the ordinary baby conveyor can't handle. The discharge end can be quickly raised from five to twelve feet. That reach enables it to fill ordinary bins, build small stock piles, work into sheds, and to load trucks or cars.

Now check all these things against the price of $448.00. Check the men that can be saved, check the features that assure long life and fast handling. Then check the coupon for additional information on this fast, low-priced conveyor.

The Barber-Greene "U" may also be had equipped with a 4 h.p., Fuller Johnson, gas engine, $485.00, or with an electric motor that meets your needs. Prices on different types of power vary slightly, and are reflected in the price to the user.

BARBER-GREENE COMPANY—*Representatives in Fifty Cities*—485 West Park Ave., Aurora, Ill

BARBER GREENE

Portable Belt Conveyors — Self Feeding Bucket Loaders

Coal Loaders . . . Automatic Ditch Diggers . . . Coal Feeders

When writing to Advertisers please mention THE AMERICAN CITY—Thank you.

Double-faced, Solid Aluminum Street Signs

Double-faced street signs of solid cast aluminum, with the street name and house number on each side of both signs, are now made by the Ohio Traffic Devices Company, 611 North 4th Street Columbus, Ohio. The letters in this "Columbus Standard" street sign are of the block type, 2½ inches high, raised ⅛-inch from the body of the sign. The signs are 4½ inches wide, 7/16-inch thick, and 22 inches long. They are usually painted in black and yellow, giving great visibility.

The post is a 3-inch steel tube 11 feet 5 inches long and hot galvanized. The bracket and trim are of grey iron galvanized and of strong design. The signs are bolted to the bracket with galvanized bolts which prevent rust streaking. This sign has been adopted as standard by the city of Columbus and has proved very satisfactory.

A DURABLE STREET SIGN OF HIGH VISIBILITY

Southern Water-Works Man Joins Union Meter Company

The Union Water Meter Company, Worcester, Mass., has announced the appointment of John G. Valentino as Southern Sales Representative. Mr. Valentino is well known in the water-works industry in the South because of his connection as Superintendent of the Savannah Water-Works, Savannah, Ga. He will have charge of sales in the South of Union water-meters, valves, presses for lining service pipe with cement, and alarm whistles. His headquarters will be in Savannah, Ga.

New Hotel for Richmond, Calif., Promoted by Chamber of Commerce

At Richmond, Calif., the local Chamber of Commerce has promoted a stock sales program, which has just closed successfully, for a community hotel. A total of $205,650 in hotel securities was sold locally, which will provide a 4-story, 75-room hotel of fire-proof construction with lobby, lounge, coffee shop, and other public space, to be located at the corner of Tenth Street and Nevin Avenue, close to the center of the city and with available parking space. The architect is James W. Plachek of Berkeley, Calif., and the hotel will be leased to Charles B. Hamilton, who operates a chain of hotels on the Pacific Coast. The financing was directed by the Hockenbury System, Inc., hotel financialists of Harrisburg, Pa.

H. A. Johnston, President of the Chamber of Commerce, was Chairman of the Executive Committee for the project. The banks and bankers were solidly behind the movement, and the Kiwanis, Rotary, Business and Professional Women's Club, and other service clubs followed the example of the Chamber of Commerce in pledging their cooperation. Richmond is a city of 17,000, 12 miles north of Oakland, and has the reputation of being the third largest oil-shipping port in the United States.

Transportation and Traffic Consultants

Two men well known in the utility field have joined forces to engage in consulting engineering work on transportation, traffic, and power. They are: A. E. Roberts and I. W. Fisk. Mr. Roberts is at present General Manager for the Receiver of the New York and Queens County Railway, the Long Island Electric Railway, and the New York and Long Island Traction Company. He has recently been with the Beeler Organization. The new firm will have the corporate title of Fisk & Roberts, with its New York office at 82 Beaver Street.

Mr. Fisk's experience in the electric railway field covers the fields of financial and operating investigations of traffic and power conditions, as well as appraisal work in Philadelphia, Kansas City, St. Louis, Syracuse, Des Moines, Wichita, Topeka, Danville, Champaign, Urbana, Colorado Springs, Galesburg and Jacksonville. Mr. Fisk was formerly General Manager of the municipally operated water, light, and power utilities in Springfield, Ill.

Change in Sales Managers at Foamite-Childs

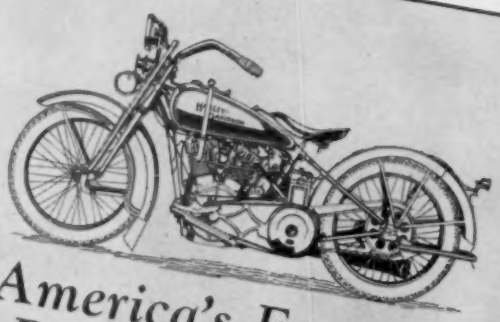
The Foamite-Childs Corporation, 79 Turner Street, Utica, N. Y., has announced the resignation of George W. Lee as Manager of General Sales, and the appointment of C. P. Smith as General Sales Manager. This change in management brings all of the Foamite-Childs sales department together under one manager. Since August 1, 1923, Mr. Lee has directed the sales of all Foamite-Childs portable and motorized equipment, including the Childs motor pick-up street sweeper, Mr. Smith being in charge of engineering sales, including the Foamite stationary system installations and automatic devices for fire fighting.

Mr. Lee has resigned in order to return to the Todd Company, manufacturers of the Protectograph System and other office appliances at Rochester, N. Y., as their Machine Sales Manager. Prior to his association with the Foamite-Childs Corporation, he had been connected with the Todd sales department for eleven years, and he is well known in the office appliance field.

Cincinnati Contracts Again for Welsbach Service

According to the Welsbach Street Lighting Company of America, 1934 Market Street, Philadelphia, Pa., the city of Cincinnati, Ohio, has renewed its contract for Welsbach street-lighting service for a period of three years.

2,057 Police Departments Say So:



America's Favorite Police Motorcycle

Because—
Motorcycle officers know that the Harley-Davidson can always outspeed the criminal's fast car.

Because—
Harley-Davidson mounted officers win the confidence of the citizens.

Because—
The Harley-Davidson has proved to be best suited to police work—more durable and more economical in service.

Special illustrated literature showing the 1925 Harley-Davidson Motorcycle will be mailed promptly upon request. Write for it.

HARLEY-DAVIDSON MOTOR CO.
DEPT. M MILWAUKEE, WISCONSIN

Harley-Davidson
The Motorcycle

Practical Motor-Bus Inspector

The safety of the motor-bus is dependent largely upon the kind of material used and the class of workmanship performed on it. To facilitate good construction and satisfactory work, the Pittsburgh Testing Laboratories, Pittsburgh, Pa., has instituted a motor-bus inspection service whereby an experienced inspector will be placed in the builder's plant at the time of the construction of the busses to check the underframes to see that they are built according to the drawings, to check dimensions and weights of material and see that the riveting is properly performed. The inspector observes the spacing of seats, to see that they are properly located; curtains, ventilators, the operation of the sash, and other features are examined carefully. He witnesses the installation of the engine and brakes, and upon the completion of each bus, observes its performance on its test trip.

Dean Returns to Consulting Practice

F. W. Dean, well known in the water-works field throughout New England, who has for some time acted as a manufacturers' representative, has announced that he has returned to consulting practice, specializing in the writing of specifications of pumping-engines and boilers, obtaining proposals, inspecting construction, testing equipment, etc. His address is 141 Milk Street, Boston, Mass.

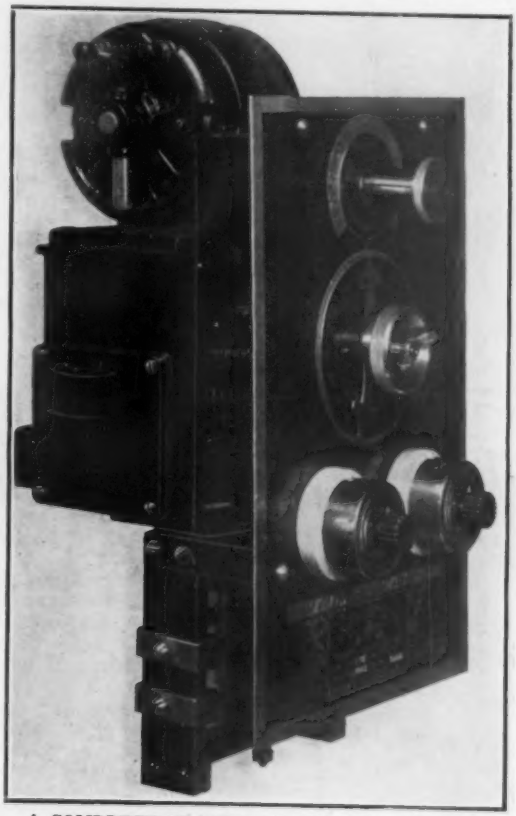
Timer for Traffic Signal Control

The officials in charge of traffic control very thoroughly appreciate the need of a sturdy, safe, sure, simple timing device for handling automatic traffic signals. The timer here illustrated, made by Ives & Stern, 28 East Jackson Boulevard, Chicago, Ill., is a neat, compact unit. Switches, adjustment, and manual control are all mounted on a brass etched instrument panel and protected by a hinged weather-proof cover with a wiring diagram on the inside of it. The entire instrument is housed in a sheet metal or a cast metal housing and mounted on a cast iron post. The entire unit can be enameled in any desired color. The instrument panel is within easy reach of the operator, and all adjustments can be made within a few seconds without shutting down the machine.

The snap-switch principle with very heavy contacts makes it possible for the timer to carry 1,000 to 2,000 watts per contact, which is more than enough to light the largest synchronized signal system. The manufacturers claim that the rotary snap-switch principle has a marked advantage over the rotary drum principle in that it makes and breaks with a decidedly quick action for a distance of 3 inches and has a stationary contact of fully 9/10 of a square inch in area.

The timing can be adjusted in a moment without disturbing the operation of the machine to meet any possible conditions of traffic. It can be adjusted in the exact proportion necessary to meet the local conditions. The cycle of time is divided by adjusting the angular relations between the two arrows shown on the large dial in the center of the panel. This requires only a moment and is done by loosening the thumb nut, moving the E & W arrow, and resetting the thumb nut. This large dial during operation revolves slowly in a clockwise direction and makes one revolution to each cycle. The timer changes the flow of traffic every time an arrow passes the index mark at the top of the dial shown in the illustration. Adjusting one arrow relative to the other then divides the flow of traffic between the two directions proportionately. The speed of the dial determines the length of the cycle. This speed can also be adjusted by setting the arrow on the upper dial to the desired speed marked on the panel adjacent. It is like shifting gears on an automobile. Three speeds are regularly furnished—50, 60 and 70 seconds each. However, as many as eight speeds can be installed by special order.

A distinctive feature of this timer is the ease with which it can be changed from automatic to manual control. All that is necessary is to place the speed change dial at the "Off" position. The



A COMPLETE TRAFFIC SIGNAL TIMING UNIT

signal is then ready for manual operation. To change the flow of traffic from N & S to E & W, a slight turn is given to the knob on the large dial in a clockwise direction until the E & W arrow passes the index mark at the top. The warning light or "Traffic change" is immediately turned on for the exact amount of time, after which the change is made automatically. The change from E & W back to N & S is accomplished in the same way. The warning light, being timed automatically, is always of the same duration, likewise during manual operation. All timing is mechanical and independent of moving contact points. It is always in adjustment no matter how great the load or how much the arcing. There is no "lap" or "lag" between "Stop" and "Go."

The world is handing bouquets to

TRADE "LEADITE" MARK

Registered U. S. Patent Office

Thousands of miles of pipe jointed with LEADITE.
Water Works, contractors, railroads, mines and industrial plants in all parts of the world are using Leadite.
These are good proofs that LEADITE is a satisfactory material for jointing cast iron water mains.
No Caulking is required.
Leadite saves at least 75%.
Used on all sizes of pipe from 4" to 60".
Leadite joints improve with age.
Leadite has been tested and used for over 30 years.

LEADITE is the pioneer Self-Caulking Material for Cast Iron Pipe
Be Sure It Is LEADITE and Accept No Imitations

THE LEADITE COMPANY, Inc.
100 South Broad Street Philadelphia, Pa., U. S. A.

NO CAULKING

Road Roller Carries Repair Materials

The service of a Pony roller made by the Acme Road Machinery Company, Frankfort, N. Y., and owned in West Pittston, Pa., has been materially increased by attaching a box to the front of the roller and one also at the rear. These are very easily carried, being supported by chains and rods from the roof. The boxes are filled with the mixed aggregate used for cold-patch work. The patch is laid and the roller used to compress it as desired. It is reported that this scheme has worked out most economically as well as being a very speedy way of handling this kind of work. The patches last much longer than if they were just spread in the hole and allowed to be compressed by road traffic.

Fecheimer, Frank and Spedden, Inc.

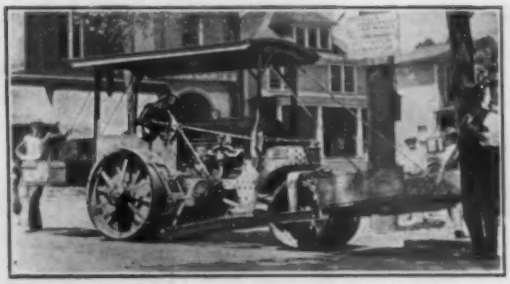
S. F. Fecheimer, Industrial Advertising Company, 615 Wayne Street, Detroit, Mich., has announced that E. G. Frank and R. G. Spedden are joining with him in forming a new organization to be known as Fecheimer, Frank and Spedden, Inc. This organization will occupy new and larger offices at 415 Brainard Street, Detroit. Mr. Frank has been in charge of the copy department of the Campbell-Ewald Company, Detroit, and Mr. Spedden has had wide experience in merchandising and publicity, having been in charge of the retail advertising department of the same company.

American-LaFrance Opens New Branch in Baltimore

The American-LaFrance Fire Engine Company, Inc., Elmira, N. Y., has announced the opening of a new direct factory branch for sales and service at 1300 Guilford Avenue, Baltimore, Md. Walter W. Withers, who formerly was in charge of fire apparatus sales, with headquarters in Washington, D. C., has been transferred to the new branch. The Baltimore branch will carry a complete stock of service replacement parts to enable the American-LaFrance Fire Engine Company to maintain its high service standards.

The Sterling Siren Fire Alarm Company

The Interstate Machine Products Co., Inc., Rochester, N. Y., has announced that it has secured the necessary legal permission to change the name of the company to the Sterling Siren Fire Alarm Co., Inc. This change has been made to more closely identify the name of the company with its product, "Sterling Sirens," which are well known in the fire-alarm field.



PONY ROLLER WITH SERVICE BOXES ATTACHED

The Logan Company Succeeds the Dow Company

The Dow Company, Louisville, Ky., well known for its spiral slide fire-escapes, which are used increasingly in public buildings because of their safety and the speed with which they make it possible to empty auditoriums and public buildings, and also manufacturers of the well-known Dow settees for park use, have announced the change in their name to the Logan Company, Inc., 310 North Buchanan Street, Louisville, Ky. This change will not affect the policy of the company nor the quality of its products.

Addition to Barber-Greene Office Building

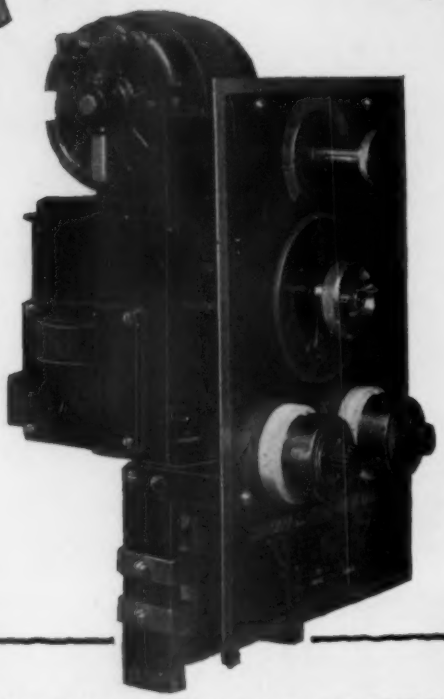
The new addition to the office building of the Barber-Greene Company, Aurora, Ill., has just been completed. This addition is of brick, similar to the original office building, but has been arranged particularly for the use of the designing and engineering departments. According to J. H. Gregory, Publicity Manager of the Barber-Greene Company, this building will have particularly good light with standard Fenestra windows and will be able to accommodate twelve more engineers with their drafting-boards.

Street Signs for White-Way Poles

Street signs made of solid cast aluminum alloy, which are non-rusting, will bend without breaking, and have no rivets or cement to loosen, have been developed by The Meriden Foster Merriam Company, 119 Colony Street, Meriden, Conn. These signs have highly polished letters which are specially treated, furnishing a glistening surface, warranted to withstand great variations in temperature and giving high visibility at night. The lettering is plain Gothic, easily readable on a black background or with black letters on an aluminum background. The individual letters are clear, broad, and with flat faces.

This company also makes large arrows for distance and direction signs, as well as special designs for city, county, and state lines. The sign specifically illustrated is Style No. 1, designed particularly for attachment to white-way poles, giving the names of the interesting thoroughfares.

STREET SIGN FOR ATTACHMENT TO WHITE-WAY STANDARDS



WHEN BUYING AUTOMATIC TRAFFIC SIGNALS
INSIST THAT THEY BE EQUIPPED WITH

IVES-STERN

TRAFFIC SIGNAL TIMERS

BECAUSE

1. They are accurate and dependable.
2. They can be used with your favorite Signals.
3. Your Traffic Officer can make any desired Time Setting instantly.
4. Their MANUAL CONTROL is the simplest known.
5. Their Time Setting stays put.
6. The Timing of the Warning light never varies.
7. They will operate 1 to 10 signals without the use of accessories.
8. Their installation is most simple.
9. They stand the test of continuous service.
10. THE MANUFACTURERS OF YOUR STANDARD SIGNAL WILL FURNISH THEM.

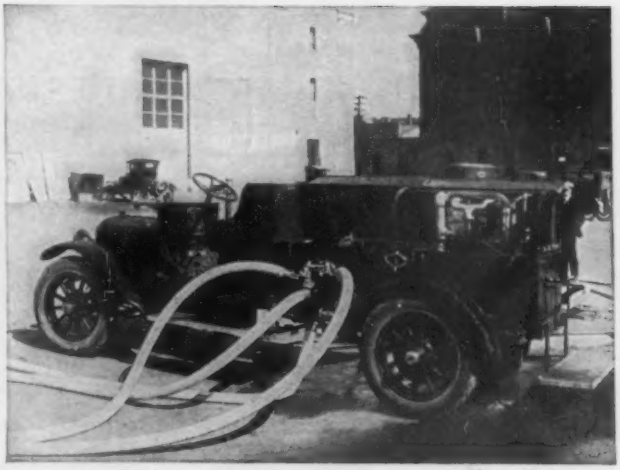
IVES & STERN-CHICAGO-ILL.
28 E. JACKSON BOULEVARD

New Motorized Booster Pump

A motor pumper is usually an expensive piece of apparatus because of the special chassis and the use of a multi-stage centrifugal or rotary pump as required to match ordinary automobile engine speeds. A single-stage pump weighs less, is simpler in construction, and hence more reliable, according to the De Laval Steam Turbine Company, Trenton, N. J. The Associated Mutual Factory Fire Insurance Companies and the Underwriters Laboratory of Chicago have approved the De Laval single-stage centrifugal pump for fire service.

A single-stage pump with a capacity required for fire-streams can easily develop 100 pounds pressure when driven by a standard gasoline engine of the sturdy marine type. The unit shown in the accompanying photograph is designed to deliver 600 gallons per minute against 100 pounds per square inch when driven at 1,750 r.p.m., that is, when water is taken from the mains under pressure and 100 pounds is added to the pressure in the main. The pump has a large overload capacity and has pumped as much as 1,250 gallons per minute.

The unit consists of a De Laval 5-inch single-stage pump with gasoline engine, mounted on a 1-ton truck chassis. The two 1⅜-inch fire-nozzles are discharging under a total pressure of 130 pounds. This particular unit was assembled by Chief Sam Christy of the Pueblo, Colo., fire department for use in outlying sections of the city, and has proved to be a very economical unit.



DE LAVAL SINGLE-STAGE CENTRIFUGAL PUMP WITH DIRECTLY CONNECTED GASOLINE ENGINE, MOUNTED ON A COMMERCIAL TRUCK CHASSIS AND USED AS A BOOSTER FOR FIRE PURPOSES

Cutler-Hammer Purchases Payne Dean Business

The Cutler-Hammer Manufacturing Company, Milwaukee, Wis., has announced that it has purchased the business and patents of Payne Dean Limited. The Dean valve control apparatus has always been made by the Cutler-Hammer Manufacturing Company, and they have recently manufactured much of the other equipment sold by Payne Dean, Ltd., such as the auxiliary power-plant apparatus, including Dean signal systems, switchboards, load indicators, etc. Mr. Dean and many of his associates are now connected with the Cutler-Hammer Manufacturing Company and will actively assist in the promotion of sales of this equipment.

A STRONG AND PERMANENT STREET SIGN AND BRACKET MADE BY THE UNION IRON PRODUCTS COMPANY, EAST CHICAGO, IND.

A New Highway Transport Fellowship

The Reo Motor Car Company, of Lansing, Mich., has recently established a fellowship in highway transport to be devoted to investigations under the direction of the Division of Highway Engineering and Highway Transport of the University of Michigan, covering an approved subject relative to the utilization and operation of motor-busses.

Hosken General Sales Manager for Sullivan

The Sullivan Machinery Company, 122 South Michigan Avenue, Chicago, Ill., through its Vice-President in Charge of Sales, Howard T. Walsh, has announced the appointment of Raymond B. Hosken as General Sales Manager of Domestic Sales for that company. Mr. Hosken has been attached to the Sales Department of the Sullivan Machinery Company since 1910. After four years in the local Sales Department at Chicago, he was appointed Australasian Manager with headquarters at Sydney, New South Wales, where he remained until 1921, when he was appointed Assistant to Mr. Walsh, at Chicago.

New Deep Wells

A deep-well water-supply of approximately 2,000,000 gallons daily has been developed recently for the city of Covington, Tenn., by the Layne Central Company of Memphis, Tenn. The same company has completed a second well for the city of Leland, Miss., and one for Greenwood, Miss., and also has work in progress in the cities of West Point, Miss., Bemis, Tenn., Louisville, Miss., Jackson, Miss., and Milan, Tenn. The Greenwood well on test pumped 4,860 G.P.M., the maximum capacity of the pump. It is capable of delivering over 7,000 G.P.M. It will be pumped at the rate of 3,000 G.P.M.—water to be used for condensing purposes at the city power-plant.

The job for the city of Covington illustrates the advantage of a genuine guaranteed water-supply contract, because when the second well failed to make the guarantee, another well was drilled entirely at the expense of the contractor.

STOP THOSE TRAFFIC JAMS!

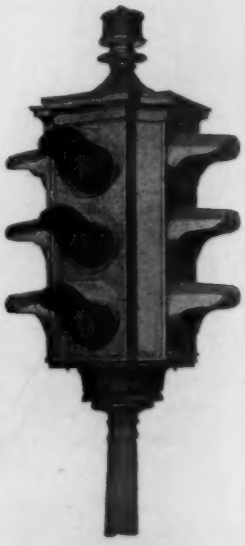
Muddled up traffic conditions date back to the days of the "hitching posts" around the "town square."

Today most of the progressive cities are going into the subject of traffic control in a businesslike manner. Efficient control systems and sensible traffic laws make driving a pleasure and automobile traffic safe for pedestrian and driver alike.

There Are Many Different Styles and Designs of Genuine Essco Automatic Traffic Control Units.

No two street intersections present similar problems. Each has its variations and particular needs.

That is why Essco makes such a complete line of units. No matter how complicated you may imagine your traffic problem—you will find the answer in the big Essco line.



ESSCO MFG. CO.

110 Harrison Street **Peoria, Ill.**

"Pioneer Builders of Guaranteed Traffic Equipment"